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Vol. XXIII. Part 12.

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The Journal of the Department of Agriculture of Victoria, Australia.

December, 1925.

PRINCIPAL CONTENTS

Subterranean Clover

Sultana Drying by the Cold Dip Process

Plum and Prune Culture

Lindenow Maize Variety Competition

Standard Herd Test Quarterly Report

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OF

THE DEPARTMENT OF AGRICULTURE,

VICTORIA, AUSTRALIA.

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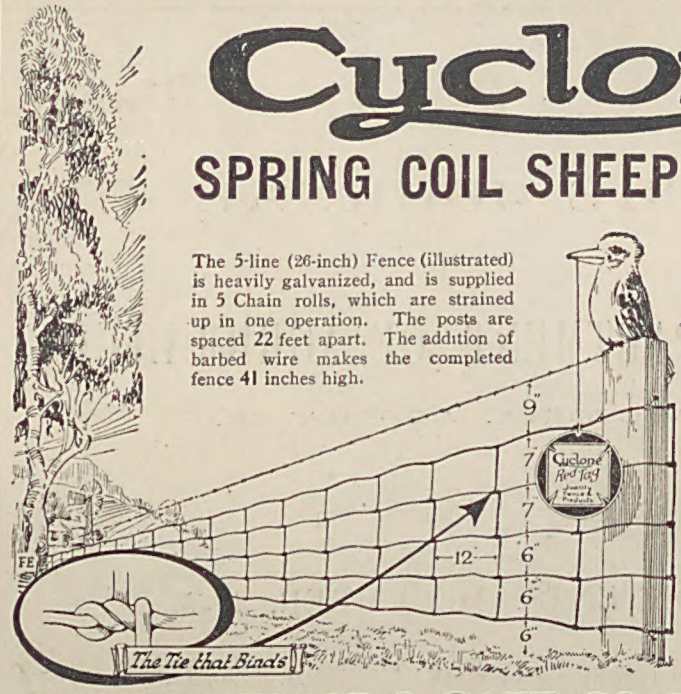

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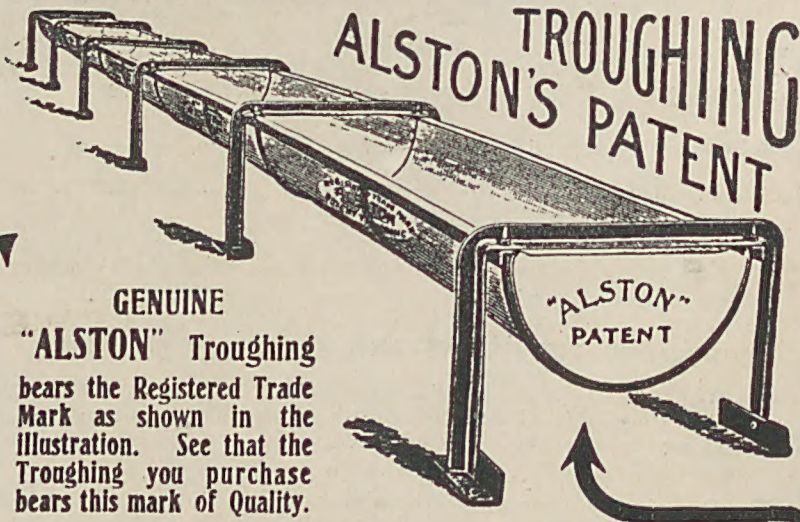

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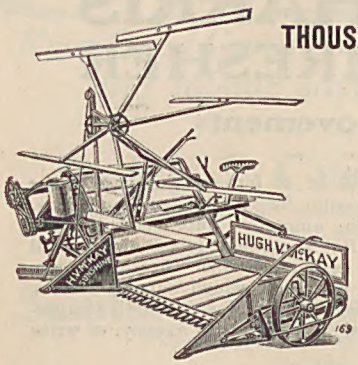

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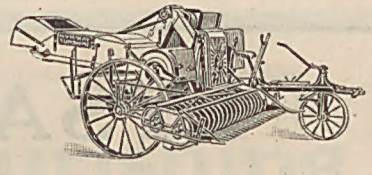

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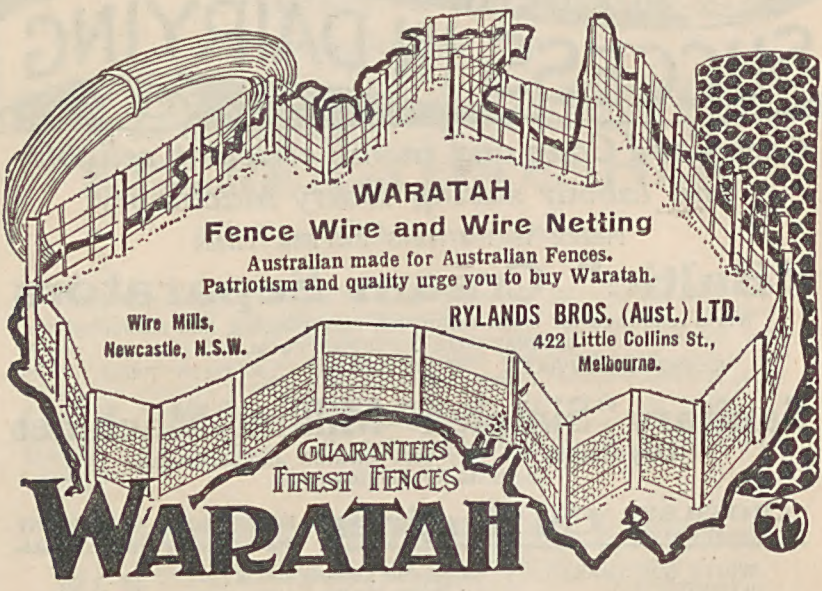

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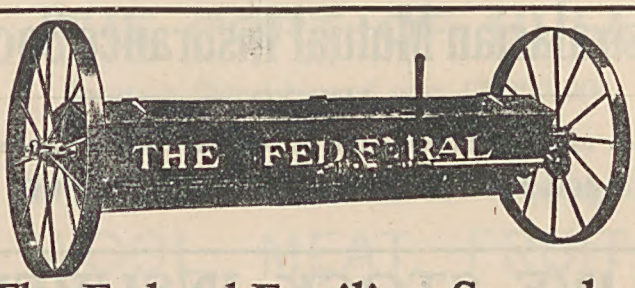

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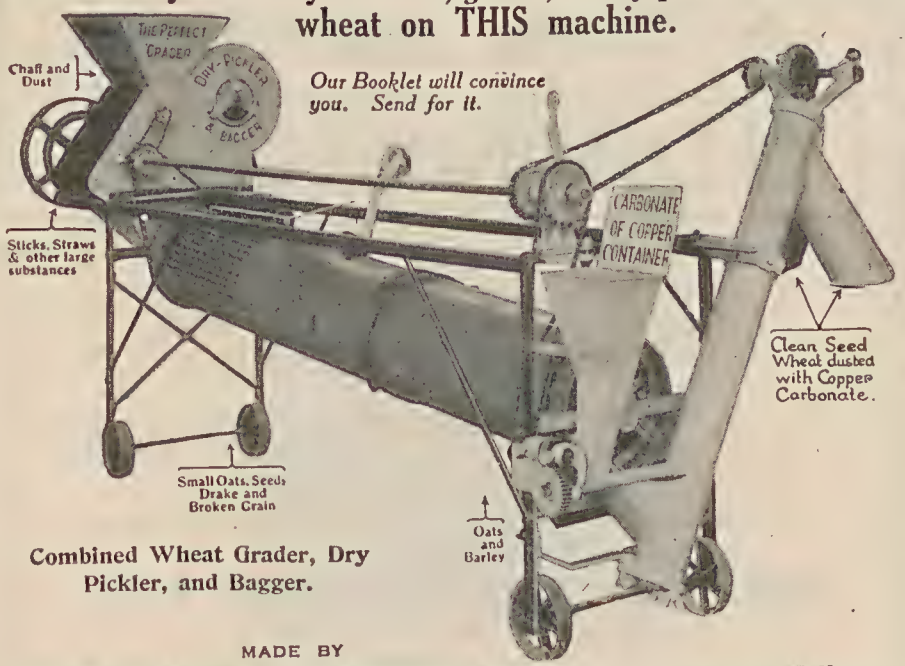
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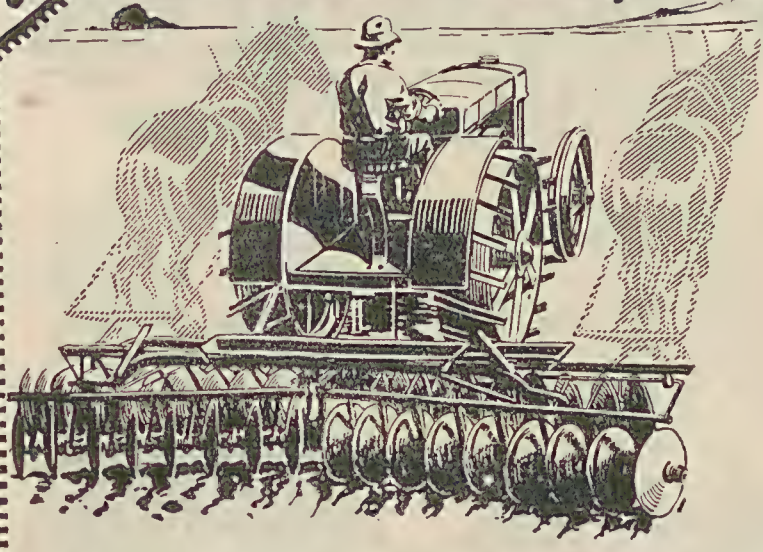

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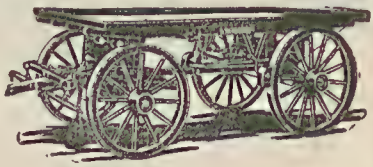

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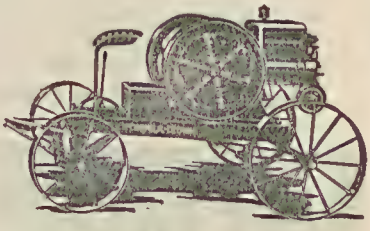

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Vol. XXIII. December, 1925. Part 12.

SUBTERRANEAN CLOVER

(*Trifolium subterraneum*).

H. A. Mullett, B.Ag.Sc., Agricultural Superintendent.

Subterranean Clover has been grown on a number of farms in this State for many years, but it escaped attention until the present boom in its use commenced some ten or twelve years ago. Since then extensive plantings have been made on all classes of soil, and a great deal of information is available concerning its proper use as a pasture plant, and its behaviour under varying soil and climatic conditions.

To crystallize the experience with the plant in Victoria, it may be said that on first-class dairying land it is to be regarded as a weed, as indeed it is in Europe, whence it came; but the area on which it is a nuisance is a mere bagatelle compared to the extensive tract of dairying, cattle, and sheep country upon which it constitutes a most valuable fodder plant, and where, perhaps, it is the most important means of effecting an improvement in the carrying capacity of pastures, with the exception of superphosphate for top-dressing, that the stock owner has had placed at his disposal since settlement began. Yet this plant was first brought under notice here by Mr. A. W. Howard, of Blakiston, South Australia, about thirty years ago, and he spent practically a life-time advocating its virtues, without a great deal of success until comparatively recently. On first-class land it tends to crowd out plants of higher fodder value and a longer period of growth, such as White Dutch Clover and Alsike Clover; and though it makes vigorous growth in the spring, it dies off completely early in the summer, leaving bare pastures.

The Plant.

Subterranean Clover is an annual, but it re-establishes itself very readily from seed, so that it is in effect a perennial when once introduced into a pasture. Single plants consist of a radiating mass of prostrate

stems, surmounted by succulent leaf growth carried on erect stalks. The trifoliate leaves are densely covered with soft hairs, as also are the stems. Each leaflet is heart-shaped and delicately toothed at the apex. The leaves on some plants show traces of dark speckled marking, others have a faint white marking, roughly horseshoe shaped, and others again

Specimens from Top-dressing Plot at Mr. T. Cowan's, Benalla, illustrating the response of Subterranean Clover to superphosphate—left 1 cwt. superphosphate, right no manure.

show no marking whatever. The different markings appear to characterize different strains, but as yet none of these has been isolated, though that could be done quite simply. The stipules, small white appendages growing at the base of the leaf stalks, are pointed bluntly, and approximate to an oval shape. In the young plants the leaf-stalks leave the stem at very close intervals, and the stipules are large and occur close

together, and give the stems at that stage a very broad, flattened appearance.

The flower-stalks are comparatively short. They spring from the axils of the leaves, and bear clusters of three or four very small white flowers. The adaptation the plant has for setting its own seed is remarkable. Immediately after flowering, the stalks carrying the flowers curve downwards, and produce from their extremities a star-like growth of thick, white, blunt spikes. These become recurved and rigid, and gradually envelop the petals, and at the same time the seed-head is pushed into the surface of the soil. Each fertile flower produces

Plant of Subterranean Clover, grown at Allansford, near Warrnambool, showing average "runner" development.

a round pod composed of a dense network of fibres enclosing a single seed. The seed, black coloured and round, is unusually large for a clover, and is generally about half the diameter of rape seed, which it roughly resembles.

The size to which the individual plants attain depends to a marked degree on the soil. On poor soils, unless liberally fertilized with phosphates, the clover looks stunted, makes little or no "runner" development, and furnishes practically no grazing. On the other hand, in fertile country the "runners" may radiate to a distance of 3 feet around the plant, and form, with those of other plants, a dense interlocking network, completely covering the ground, and surmounted by

erect leaf-stalks, often from 10 to 12 inches high, the whole protected by the broad leaves. The plant puts most of its energy into the runners. The growth of leaves, when parted with the hand, is seen to be less dense than appears at first sight.

The seeds germinate during the first autumn rains, and on warm soils, provided the rains are early, the autumn and winter growth is fairly satisfactory. The great flush of growth, however, is in the spring, and once the hot weather sets in the leaves rapidly wither, exposing the stems or runners. If sufficiently dense, these furnish valuable grazing for some time, but later they shrivel and gradually disappear. Stock, and sheep more especially, forage among the débris, which on good stands is literally a mass of seed cases containing nutritious feed. Provided water is available, sheep do remarkably well on this material

Luxuriant growth of Subterranean Clover. Right, top-dressed with 2 cwt. superphosphate; left, no manure.

for many months, and no matter how hard the grazing, sufficient seed remains to replant the clover. The "burrs" do not adhere to wool in any way.

Soils and Climate.

Broadly speaking, Subterranean Clover is not worth serious attention in this State, where the rainfall is less than 20 inches annually, though on some of the lighter soils, such as sands which hold moisture well, and in situations where the rainfall is augmented by a good natural "run off" from adjacent hills, the plant can be grown successfully. However, a little seed, if introduced into the pastures almost anywhere in the north, is not out of place, as there are patches to which it will adapt itself after acclimatization, though it is not likely to become

a unit of first-class importance in the pasture. The ideal precipitation is in the region of from 30 to 40 inches annually, but 20 inches is sufficient.

The proper place of Subterranean Clover in Victorian agriculture is for sowing down in the districts of more than 20-in. rainfall, in situations where the better clovers, like White Dutch, Alsike, and Red, do not thrive.

The plant is able to adapt itself to an unusually wide range of soil types. It grows best on fertile sandy loams, where the drainage is good and lime abundant; but at the other extreme, provided it is supplied with liberal dressings of phosphoric acid in readily available form, it will often transform poor cementy soils, deficient in lime and badly drained. It does well on most clay soils, on all sands, and on drained peat swamps.

Perhaps the most striking transformation of pasture land by its use is on the light soils lying between Hamilton and Goroke. This belt is very extensive, and embraces several millions of acres; and, though the rainfall is nowhere greater than 27 inches annually, and at Goroke no more than 20 inches, the clover, provided it is manured, does exceptionally there. It has increased the carrying capacity of land several times over; but as yet farmers and graziers in this area have been very slow to exploit its possibilities.

Another area where the rainfall is comparatively light and where Subterranean Clover thrives is that typified by the State Farm at Rutherglen. The rainfall is 21 inches annually, and the soil is a poor grey cement, with buckshot overlying stiff yellow clay.

Splendid results are being obtained in the Gippsland hills, where Subterranean Clover has been sown down on soils formerly growing only a thin sprinkling of cocksfoot tufts, intermingled with bare spaces, rib-grass, various flat-weeds, and wallaby grass. This country was originally sown down to English grasses and clovers, but the clovers and the rye-grass have long since disappeared. Here the clover furnishes a great bulk of feed, and the yield of butter fat rises in sympathy. In a few instances, complaint has been made that in the spring flush the clover flavours the milk, and that the butter factory authorities sometimes reduce the cream by one grade, but that, notwithstanding, the net profit is reckoned to be much greater. The "off flavour," which is not very pronounced, can be mostly eliminated by good aeration of the milk. The weight of experience then, on these hills, is that it pays to sow Subterranean Clover; that it does not dominate the pasture to the same degree as elsewhere; also that it remains succulent longer than the trefoils, which are the only legumes, other than an occasional plant of white clover, which persist in old pastures. The presence of the plant on goods flats in Gippsland is regarded as undesirable.

Another extensive belt of hill country where subterranean clover is valuable is in the North-Eastern District, in the area served by the Yea-Mansfield railway line.

In the Western District, useful feed is furnished by it on the cheaper grade of volcanic soils, as at Allansford, Strathkellar, and elsewhere, and there are extensive areas of poorer sandy soils and cementy loams where it thrives if treated properly.

Many claims have been put forward that the plant will grow on poor heath land, but they cannot be substantiated, though on the better flats in the heath it does reasonably well.

A point that is worth making in regard to Subterranean Clover, sown on dairying land upon which the first-grade clovers do not now thrive, is that it gradually paves the way for a general soil improvement, and the creation of the degree of fertility required for these clovers, which can be sown later.

Seeding the Pasture.

The comparative dearness of Subterranean Clover has forced every one to practice great economy when sowing it. Where light seedings are used, the "runner" development may be relied upon to thicken the stand. The secret of success is to spell the freshly-sown paddock during the first spring. If grazed with cattle or horses at this stage, the

Subterranean Clover established in virgin soil at Glenthompson Experimental Field, without cultivation.

runners are readily pulled up by the stock, and thus the spread of the individual plants materially checked.

For sowing with grass mixtures containing English grasses and clovers, on land where the latter are not expected to hold more than a few years, Subterranean Clover can be included at the rate of ½ to 1 lb. per acre. On land where the English grasses do not thrive, it may be sown by itself, or preferably with some annual form of rye-grass, such as Italian, Westernwolths, or Wimmera rye-grass. The latter is especially useful in the poorer, or on the drier situations. From 10 to 15 lb. of annual rye-grass and 3 or 4 lb. of Subterranean Clover is a good seeding. The land should be well ploughed and worked down to a fine tilth, and well consolidated by rolling if necessary. Good consolidation is essential in sowing this, as with other grass seeds. The seed should be sown as early in the autumn as the onset of the rains permit. March and April sowings are best, but good stands have

been secured by seeding as late as June, though a loss of seed and poor growth the first year may result.

Mix the seed with the manure a few hours before seeding, and sow through the manure run of the drill. The hoes should just scratch the surface of the soil, and the conveyor tubes are best disconnected and the seed allowed to broadcast itself. A plain roller should be used to press the seed in if the soil is at all loose or tending to dry out, otherwise a brush harrow will cover the seed satisfactorily.

On the light soils at Cavendish, where the Department conducted experiments with Subterranean Clover, it was found that a light cover crop of oats assisted materially the development of runners during the first year; 20 lb. of oats per acre may be substituted for the rye-grass if preferred.

Subterranean Clover and Paspalum.

In this State, Paspalum has long been looked upon as undesirable, by reason of its bareness during the winter and early spring, and the difficulty of re-ploughing the land sown to it. Instances have been brought under notice where several farmers on good river flats in Gippsland have top-dressed paspalum pastures with superphosphate to which a light seeding of Subterranean Clover has been added. The Subterranean Clover has done well, and the two plants make an excellent combination and furnish good feed practically the year round. The Subterranean Clover is prominent in autumn and spring, and when it dies off the Paspalum shows out prominently.

Recent reports from New Zealand show that Paspalum and Subterranean Clover are being largely sown in dairying districts there, both on first-class and second-class soils. The grass mixture sown is a complete one, but the Paspalum and Subterranean Clover ultimately form the principal elements. The following mixture is used:—

Perennial Rye	15 lb.
Cocksfoot	6 lb.
Paspalum	6 lb.
Red Clover	3 lb.
White Clover	2 lb.
Subterranean Clover	2 lb.

Farmers in this State on first-class flats will think twice before sowing such a mixture, but there is no reason why those who already have Paspalum pastures should not attempt to improve them by the addition of Subterranean Clover.

Establishing Subterranean Clover without Cultivation.

Departmental experiments at Glenthompson, Bannockburn, and elsewhere have proved that Subterranean Clover can often be successfully established on pastures without ploughing the land at all, provided phosphates are applied as well. At Glenthompson (25-in. rainfall), on grey loam overlying yellow clay, this method was remarkably successful, and showed that in all probability the extensive areas of similar soil in the district could be inexpensively improved by this means.

In some departmental top-dressing experiments there on the farm of Mr. W. J. Floyd, there were five plots, each of 2 acres, including one with no manure. No trefoils came after top-dressing. An attempt was made the following year (1920) to introduce them by merely drilling them on the surface. On strips

A specimen of Subterranean Clover grown at Flinders.

two drill-widths, each of five clovers and trefoils, including Subterranean Clover, were drilled across the sites of the plots. No fertilizer was used. Subterranean Clover was the only one that established itself satisfactorily. It grew only where superphosphate was used, and best where the most manure was applied. There was practically no

germination on the unmanured plots. The seed was sown in early autumn at the rate of 4 lb. per acre on the hard soil; a set of harrows was drawn behind the drill. The clover grew luxuriantly and formed a dense mat 12 inches high. In the spring the area presented a neat chequer-board appearance.

These experiments suggest that there are great possibilities of rapidly and cheaply improving immense areas of grazing land in the State now growing unthrifty native grass. This is the method of sowing the seed down on the old cocksfoot pastures in Gippsland, in circumstances where the ploughing up and re-establishment of the pasture is for any reason impracticable.

Farmers who have a few acres of Subterranean Clover may provide themselves with seed cheaply if they rake up the mature plants. The material can be chaffed and winnowed, and thus the seed cases and any threshed seed separated. This material gives satisfactory germination when broadcast, and is a much more practical and positive method of laying down the pasture than the practice sometimes advocated of feeding the hay to stock, and relying on seed passing through the animals for distribution.

Manuring.

Subterranean Clover is peculiarly susceptible to the amount of available phosphoric acid in the soils. On very light soils, if the dressing of fertilizer applied at seeding time is not replenished after a few years, the vigour of the clover gradually declines, until ultimately the plant becomes stunted and of little more value than ordinary grass. Upon being top-dressed again it rapidly improves, and is soon completely restored. On these soils 2 cwt. of superphosphate is recommended at seeding, followed by an application of 1 cwt. per acre every few years.

On good soils the decline is less obvious, but the response to fertilizer is equally wonderful. Top-dressing here will be found desirable, and may with profit be increased to 2 cwt. every second year. The manure is best applied broadcast or by drill on the surface in the early autumn. In very moist, cold districts, spring is satisfactory.

Subterranean Clover and Weeds.

Claims have been advanced for Subterranean Clover that it will suppress bracken fern, but it will not enter dense thickets of fern. However, provided the fern is cut and burned, and Subterranean Clover sown at from 4 to 6 lb. per acre, if assisted by superphosphate in liberal applications, it will help materially in crowding out fern. It does this mainly because more stock can thus be carried among the fern. They eat young fern concealed by the clover, and bruise and tramp tender fern fronds.

Subterranean Clover will largely suppress sorrel—at least that has been the experience on the departmental experimental field at Cavendish. Capeweed, silver grass, and onion grass it also soon chokes out.

Harvesting for Seed.

Practically the whole of the seed comes from the Mount Barker district in South Australia, where the Howard family and others have developed an extensive trade. In fact, the most noticeable feature of the landscape when the writer made a visit to the district last Easter were stacks of clover hay awaiting threshing, while the principal carting along the roads appeared to be carting the hay to the threshing plants. On one farm five stacks, totalling 600 tons, were awaiting threshing.

For many years no one but Mr. A. W. Howard possessed an efficient machine for separating the seed from its case, and the system grew up under which he used to secure the right to harvest very large fields of clover for the purpose of threshing them.

Now, however, this and other machines are on the market, and consequently the number of persons threshing seed has increased. A factor contributing to the high cost of the seed is the prices demanded by the owners of Subterranean Clover paddocks in South Australia for the right to harvest the hay. Last season as much as £8 per acre was paid at Mount Barker for some of the best paddocks. This year seed could be purchased very reasonably at Mount Barker, and there was so much harvested that many stacks will have to be carried over to next year.

Briefly, the method of harvesting is as follows: When the mature plants are to be gathered immediately after harvest they may be cut with a mower provided it is fitted with a crop lifter, such as is used for peas. Later, when the plants have become very brittle, a horse rake can be used, and the mower dispensed with. These methods, however, do not get more than 50 or 60 per cent. of the seed. The best paddocks are raked by hand. The yield ranges from 100 to 200 lb. of seed per acre. The produce is carted and put through an ordinary wheat thresher, such as the Marshall. This winnows the seed cases from the straw. The former are then put through a patent Howard huller, which consists of a revolving drum with spiral fins. This grates the seed-cases against a cylindrical meshwork of stout wire, with the result that they are pulverized, and the seed drops through the netting, and is then winnowed twice. Seed is often gathered from the same paddocks four or five years in succession, but top-dressing with phosphates at the rate of 1 cwt. per acre is regarded as essential. The paddocks also furnish considerable grazing before being closed up for seed.

Subterranean Clover and Rotation Systems.

Owing to the expense of laying down a paddock of Subterranean Clover, and to its comparative slowness in establishing itself in the first year, it is not adapted for short course rotation systems. It pays better, once the pasture is doing well, to graze it for some years. However, if the paddock is required again for cultivation, two, and sometimes three, other crops in succession may be grown without the necessity for reseeding the clover.

Pests.

Subterranean clover is comparatively free from pests. It has not shown susceptibility to any serious fungus disease. Two insects, however, do damage from time to time. The Pea Mite (*Motophallus bicolor*) attacks Subterranean Clover along with many other plant species. The attack is in the main confined to April-July, though in recent years the pest remains vigorous for longer periods. There is no simple remedy, but if the field is heavily grazed it will check the pest by making it difficult for it to obtain food and shelter. The Lucerne Flea (*Smynthurus vitidus*) also attacks the plant, occasionally in early spring. When the weather warms the pest disappears and the crop recovers. The same ameliatory treatment as for Pea Mite is recommended.

Summary.

1. Subterranean Clover is a valuable fodder for improving the carrying capacity of extensive areas in this State.
2. Although an annual, it is in effect a perennial, because of a special adaptation for reseeding itself which it possesses.
3. Except in rare instances, it does not thrive where the rainfall is less than 20 inches annually. The optimum is from 30 to 40 inches annually.
4. Its use is not advised on first-class dairying land.
5. Its proper sphere is in the moister areas of the State, where the better-class clovers are not permanent.
6. It gives remarkable returns on the light soils of the Western District and elsewhere.
7. It is peculiarly responsive to top-dressing with superphosphate, and top-dressing triennially is essential for the maintenance of full vigour on the light soils.
8. For best results, the seed should be sown on well-prepared soil. An addition of annual rye-grass is useful.
9. Sow early in autumn, from 2 to 4 lb. per acre of Subterranean Clover, with 2 cwt. of superphosphate.
10. Sow shallowly on a fine, firm seed bed.
11. Experiments at Glenthompson, Bannockburn, and Goroke show that the clover can be established on light soils, not necessarily of loose texture, by merely drilling on the surface, provided superphosphate is used.
12. Subterranean Clover makes a useful addition to old Paspalum pastures, sown on the surface and top-dressed.
13. Subterranean Clover combats weeds like sorrel and silver grass.
14. Subterranean Clover will not suppress dense thickets of bracken, but is worth sowing where bracken is cut and burnt, provided top-dressing is practised.
15. To obtain seed, do not allow grass to grow too rank. When dry rake up with a horse rake; this will secure 50 per cent. of the seed. For balance, if required, hand raking is necessary.
16. To obtain first-class marketable seed a special huller is required; but if the material is put through a chaffcutter and winnowed, the partly hulled seed can be used for sowing.

SULTANA DRYING BY THE COLD DIP PROCESS.

By François de Castella, Government Viticulturist.

During the past two drying seasons a notable departure has been made in the method of curing our sultana crop. This consists in the partial substitution of what is known as the cold-dip process for the hot caustic soda dip previously used. Experiments made in 1924 promised so well that they were repeated on a much larger scale during last drying season, when something like 10 per cent. of the entire sultana pack in Mildura Shire was thus treated. Some growers, indeed, used the cold dip exclusively.

The new method is now firmly established in public favour and bids fair to altogether supersede the methods hitherto followed.

Objects of Dipping.

Dried grapes may be divided into two classes: Those which are dried without any preliminary treatment and those which are dipped, prior to drying, in an alkaline solution. To the former class belong dessert raisins (clusters or layers), currants, and, until recently, the majority of Californian sultanas and Thompson's seedless.

In the second category are pudding raisins or lexias, sultanas from Asia Minor, and, of recent years, Californian "oil bleached" sultanas* and Thompson's seedless.

The objects of dipping are twofold—the action of the alkali on the skin of the berry breaks it down somewhat, and facilitates the passage of moisture, thereby considerably shortening the drying process. In the second place, it very considerably modifies the appearance of the finished product. This is exemplified in the marked difference between a dessert raisin and a lexia. The undipped dessert raisin is of a dark, almost bluish colour showing through the thick whitish bloom of the grape, which gives it a characteristic matt appearance, whilst the dipped lexia is of golden brown colour with glossy skin, yet both are dried from the same variety of grape.

Victorian sultanas have, until quite recently, been cured by a similar method to that followed near Valencia (Spain) for the production of lexias, usually known in England as Valencia raisins, and which consists in dipping, prior to drying, in a hot caustic lye. The term "lexia" is, indeed, merely the Spanish for lye.

Valencia raisins are dipped in a lye made by treating a water extract of wood ashes with quick-lime, in other words, a caustic potash lye. In Victoria caustic soda has been substituted for the potash lye used in Spain.

The Ordinary Hot Dip.

Almost since the inception of the industry, Victorian sultanas have been cured with a hot dip of approximately half the strength of that used for the thicker skinned Gordo Blanco grape from which lexias are dried, the proportion of caustic soda being about 1 lb. to 20 gallons of water; the strength ranging from a maximum of 1 lb. to 15 gallons, to

* The Californian sultana is dried from a grape differing from our sultana and inferior to it. The vine we call sultana in Australia is known as Thompson's Seedless in California.

a minimum of 1 lb. to 30 gallons. In a few cases an even weaker lye has been favoured.

The strength varies somewhat according to the toughness of the skin of the grape; it should be sufficiently strong to cause slight "cutting" of the fruit immersed in it. By this term is understood the appearance of minute cuts or cracks in the skin. If too strong, excessive cutting will occur; if too weak, the action on the skin will be insufficient and the rate of drying too slow in consequence. The proper strength is judged by the amount of cutting rather than by following any hard and fast rule. The dip is maintained at a temperature just below boiling, and the fruit, contained in the perforated dipping tins in which it is picked, is immersed in it for a couple of seconds. These tins usually contain from 16 to 18 lb. of grapes.

Drying takes place on the wire-netting racks, which, of recent years, have superseded the trays formerly used for the purpose. (*See* Figs. 1 and 2.)

Since the application on a large scale of the cold dip some growers have modified the hot dip, mainly by employing a weaker lye and working at a lower temperature (190° to 196° F.). The "Johnson" method, which has given very good results in South Australia, is on these lines. Some have also practised the spraying with oil emulsion during drying, which is a marked feature of the cold dip method. These modifications, which tend towards the production of a raisin of golden rather than of brown colour, have resulted in an improvement in the quality of the fruit thus processed.

Reasons for Adopting the Cold Dip.

For many years past our sultanas, cured by the method outlined above, have given complete satisfaction locally. As Australian production increased, imported sultanas were gradually displaced, until about the year 1907, when importation ceased altogether. The typical Australian sultana is golden-brown in colour, rich in sugar and flavour, and, as regards food value and wholesomeness, of undoubted high quality. Nevertheless, when production largely in excess of Commonwealth requirements rendered imperative the exploitation of overseas markets, it became evident that our sultanas found less favour on the London market than the Turkish fruit shipped from Smyrna, the golden colour of which had become familiar to the English consumer through long usage. Notwithstanding the acknowledged quality of our fruit, the paler coloured Smyrna sultana commanded a higher price in London. Complaints were also made as to Australian sultanas "sugaring" and becoming sticky after some months storing.

It became evident that the only way to obtain top prices for our fruit in London was by supplying it with the colour and other qualities most in demand. A change in our curing methods was obviously desirable, and a move in this direction was made during the 1924 drying season. Advantage was taken of the presence of some Greek refugees from Smyrna who had settled in Mildura. Acting on information received from them, numerous experiments were conducted. Notwithstanding the unsatisfactory weather conditions of the 1924 drying season, results were most encouraging, so much so, that the cold dip was practised on a very much larger scale in 1925, when no less than 1,300 tons of sultanas

were dried in Mildura and Merbein by the new process. It would, indeed, have been even more largely applied were it not for the limited supplies of potassium carbonate obtainable in Australia; available stocks were soon exhausted by the sudden and unexpected demand.

All those who gave the cold dip a fair trial are quite satisfied with it. Those who practised it most largely last season say they will not go back to the hot caustic dip except, perhaps, in a bad drying season.

To call the method new is scarcely correct, seeing that it has been followed in the Levant for centuries. Even in Australia it is a revival rather than an innovation, for it was practised to some extent in the early days of the Mildura settlement. The method then followed seems to have been faulty in some details, and was not generally adopted. The hot dip, with its more rapid processing, came into general use and for some 30 years the cold dip was quite lost sight of.

Fig. 1. A grape-drying rack—ordinary type. Modern racks are usually provided with permanent corrugated iron roofs.

The Cold Dip Summarily Described.

The innovation (in Australia) consists in the substitution of a cold potassium carbonate dip for the hot caustic soda dip previously used. The concentration of the solution is increased about ten-fold, being usually in the neighbourhood of 1 lb. of potassium carbonate to 2 gallons of water. To this solution olive oil is added at the rate of rather more than 1 pint to 50 gallons of the solution.

The duration of immersion is also increased. Instead of being merely dipped for a second or two, as was sufficient with the hot caustic lye, the fruit remains in the cold dip for a time which varies, according to the operator, from one minute to about four minutes.

From the dip the fruit is conveyed, after draining, to racks or trays in which drying takes place—the respective merits and defects of these will be discussed later. It is essential that the fruit be not spread too thickly during drying.

Unless drying proceeds very rapidly there is a danger of sun-scorch, and the development of a brown colour in fruit freely exposed to the sun. This can be avoided by shading the fruit on the racks during the first few days of drying.

During drying the fruit is usually sprayed two or three times with ordinary dip solution in which the proportion of oil is slightly increased. Spraying favours drying, and is more particularly needed if its progress is not sufficiently rapid. When nearly dry—within one or two days of its complete dryness—the fruit is bleached or finished on strips of hessian lying on the ground, to which it is transferred from the racks or trays. Bleaching develops the desired golden tint. This is aided by an additional spray. It is particularly beneficial in the case of rack-dried fruit, the green tint of which soon turns to gold.

Premature removal from the racks must be carefully avoided; likewise any handling of the fruit on the rack before it is fit for removal.

Final washing is often beneficial, and sometimes necessary to remove any excess of potash left by spraying. This is effected by dipping in a weak potash solution (1° Baumé with olive oil at the rate of 1 pint to 50 gallons). The fruit dries very rapidly after it.

The cold dip promises marked improvement in two important directions, viz.:—

(1) Improvement in colour, which is light golden instead of brown.

(2) Absence of stickiness in the finished fruit, owing to the skin not being "cut," hence elimination of "sugary" appearance on storage.

Its principal defects are as follows:—

(1) Slower drying, more particularly noticeable in a faulty drying season. More rack accommodation is needed than with the hot dip method.

(2) The presence of odd dark berries, which are rendered more conspicuous by the lighter colour of the general sample.

Though the method was so extensively applied last season it has scarcely yet emerged from the experimental stage. Concerning several important points opinions differ somewhat. The following more detailed remarks on some salient features of the process may prove of service.

Maturity of Fruit.

Opinions differ somewhat as to the best degree of ripeness. The Greeks state that in the past Mildura sultanas have been picked too ripe. Nevertheless, the experience gained last season is that thoroughly ripe but not overripe fruit dries to the best colour. Unripe grapes dry too green, whilst there is danger of odd berries drying too dark. Golden and "milky" grapes are far preferable to those at the grassy-green stage; very late picking on the other hand, gives too many "blue" berries. It has been recommended* "that sultanas should not be dipped until the sugar content is 12½° Baumé." According to one successful grower, excellent dried samples have been obtained with gravities ranging from 11° up to 14° and even 15° Baumé. The difference was not very marked, though those picked at 14° were, perhaps, the best.

* Recommendation of meeting of growers on 21th August, 1925, convened by the Mildura, Merbein, and District Horticultural Society to discuss practices followed in the cold dipping of sultanas.

Double picking has been recommended (growers' meeting), the golden and milky fruit being picked and processed separately to yield a better quality product than the greener fruit. The vines may be picked over twice or each picker may be supplied with two dipping tins, the classification of the fruit being entrusted to him. This, no doubt, increases the cost of picking, but not to a very great extent. It has been found in one case that classifying by the picker reduced the number of tins picked from 150 to 130 per day, in other words, an increase of about 14 per cent. in the cost of picking.

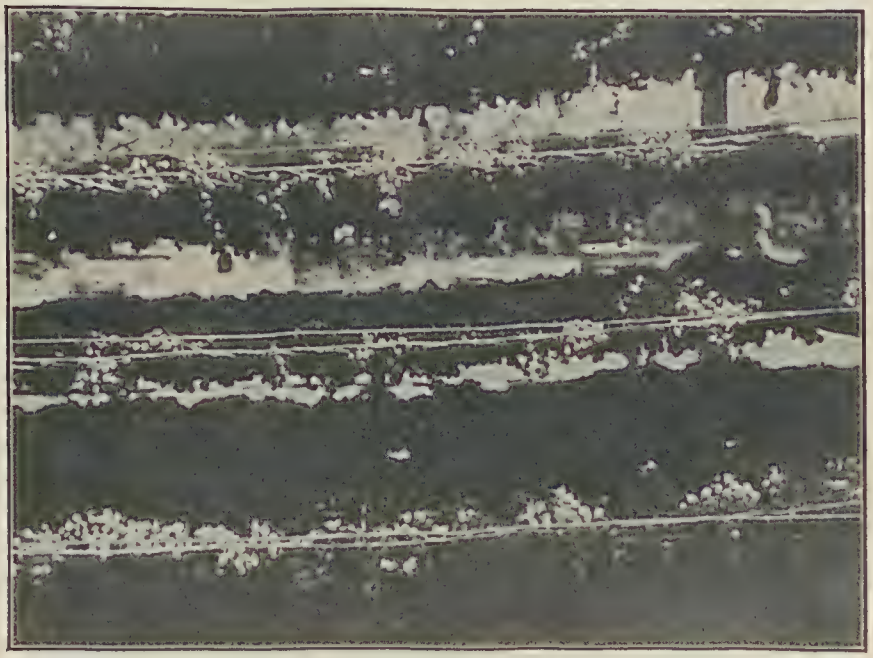


Fig. 2. Close up view of sultanas drying on a rack. Note the tiers of ordinary, rabbit-proof netting.

The Dip Solution.

Many different formulae were extensively tested last season, the potassium carbonate content varying from 6¼ lb. to 100 lb. for 50 gallons of water, and that of oil from 5-6 pints to 6⅔ pints for the same quantity of solution.*

The higher strengths resulted in excessive potash injury, and a standard of 1 lb. potassium carbonate to 2 gallons of water was soon arrived at, which was the concentration most generally used. By potash injury is understood slight burning or browning at one or both ends of the berry, but mainly at the stalk end; it is more frequent on barely ripe than on fully matured fruit. For its avoidance the lesser strength of 1 lb. to 3 gallons of water is sometimes favoured. Reduction in strength, however, retards drying, and colour suffers; rapid drying is essential for bright-coloured fruit. A strength of 1 lb. to 3 gallons is satisfactory early in the season, when the grapes are less ripe and weather very suitable for drying. Lower strengths unduly delay drying,

* A. V Lyon, in Bulletin issued by S.A. Agricultural Bureau, 20th May, 1925, Conference of River Branches, page 27.

and a darker sample results. Scorching is also more frequent on fruit exposed to direct sunlight.

According to Mr. A. Lochhead the strength should be proportionate to the ripeness of the grapes. Thus, with a must gravity of 11 ° Baumé the gravity of the dip should be 5° Baumé, with the grapes at 13° Baumé it should be 6° Baumé, and with grapes at 15° Baumé it should register 7° Baumé.

Mr. C. G. Savage gives a table* showing the approximate content of commercial potassium carbonate (78.8 deg.) or pearlash, corresponding with different Baumé readings. From it the following table has been compiled:—

Deg. Baumé.	Specific Gravity.	Commercial K_2CO_3.	Commercial KC_2O_3 oz. per gallon.
		%	
5	1·037	5·3	8½
6	1·044	6·6	10½
7	1·052	7·5	12
8	1·060	8·7	14
9	1·067	9·7	15½
10	1·075	10·6	17
11	1·083	11·8	19
12	1·091	13·1	21

Pure potassium carbonate being too expensive, commercial carbonate commonly known as pot. carb. is the form used. This is very variable in composition; the pure potassium carbonate content should be guaranteed by the vendor. The best English sample of crude potassium carbonate contains 80 per cent. pure, but in some samples it is as low as 50 per cent. Many samples contain part of the potash in the form of caustic. One brand largely used in Mildura last season was found on analysis to contain no less than 15 per cent. of caustic potash. Curiously enough, little difference in the final result seems to have been noticed with commercial carbonates of very different degrees of purity, and with and without caustic potash. Water extract of wood ashes has been successfully used by several growers; in some cases this wood-ash lye was supplemented by adding enough potassium carbonate to secure the desired gravity.†

The proportion of olive oil is subject to a good deal of variation; it is usually at the rate of rather more than a pint to 50 gallons of dip solution. The test for determining the best proportion to use, for the grapes to be treated, will be described presently. Olive oil is variable in composition. Imported oil is frequently more or less adulterated with cotton seed and other oils, the presence of which is undesirable for the purpose under discussion. Pure oil is much to be preferred.

The preparation of the dip is a simple matter. The pot. carb. is dissolved in the water. The requisite quantity of oil is emulsified by agitation with a small quantity of the solution (1 gal. or so), which is then stirred into the bulk. With pure olive oil, emulsification is immediate and complete, but with many samples it is only partial, a small

* Report of Conference of River Branches, 20th May, 1925, p. 16.
† Mr. C. G. Savage, Conference of River Branches, pp. 12–16.

proportion remaining as a "float" on the surface; this must not be allowed to find its way into the dip, where it would render the fruit greasy.

It is easily eliminated by emulsifying in a separate tin vessel of about 2 gallons capacity, provided with a tap. After resting for a minute or so the emulsion is run into the bulk of the dip through the tap, the float being retained and discarded. Allowance must be made for the proportion of float, and the oil proportionately increased.

It will be seen that the dip is not made according to a constant and invariable formula, but is subject to modification according to the condition of the fruit to be treated. Nevertheless, at the growers' meeting of 24th August, 1925, the following resolution was carried:—

> That this meeting recommends that the standard dip be in the proportion of 1 lb. of carbonate of potash to 2 gallons of water with 1 pint of oil as a minimum, it being understood that oil may require to be added until the bloom is removed.

Many growers rely on the Baumé test, a dip of 6° Baumé being that most favoured.

The quantity of materials needed to turn out a given weight of dried fruit has been estimated by Mr. Lyon* at 1 cwt. potassium carbonate, and 3 gallons olive oil for 5 tons of dried sultanas. This is quite in agreement with the experience of Mr. S. Mansell, who used 1 ton of postassium carbonate in the drying of 95 tons of finished fruit. This consisted mainly of sultanas, together with a few lexias and elemes. The latter need a stronger dip, and proportionately more potassium carbonate must be used than in the case of the sultana.

The Action of the Dip—The Part Played by Oil.

The action of the alkaline solution on the grapes dipped in it, is not yet thoroughly understood. The drying process seems to be of osmotic nature, the skin of the berry playing a very important part. There is a marked difference between the action of the cold dip and that of the hot caustic dip on the skin. The cutting effect of the latter has already been referred to. Nothing of the kind occurs with the cold dip; the skin remains intact. It is no doubt softened, and the passage of moisture through it is thus facilitated, but there is no visible injury.

The browning of the skin and, to a lesser extent, of the pulp, is a complex phenomenon, probably akin to casse in wine† and to the browning of sliced apple on exposure to air. These consist in the oxidation of tannin and other substances under the action of oxydase, an enzyme present in most grapes and plentiful in those affected by the *Botrytis cinerea* mould. Browning of sultanas seems to be favoured by the alkaline dip.

It is far more pronounced with the hot caustic than with the cold carbonate dip. In the latter case it is insignificant on shade dried sultanas, which largely retain the natural colour of the fruit until bleached in the sun, when they become golden rather than brown; it is, however, in evidence in sun-scorch and potash injury. The action of the alkali is evident, since undipped grapes dry blue, not brown.

* Address at Nyah reported in *Sunraysia Daily*, of 23rd Oct., 1925.
† See Bulletin No. 48, Department of Agriculture, Victoria, p. 9.

That oxydase is responsible for the brown colour receives confirmation from its prevention by sulphuring. Sulphur dioxide is similarly used for the prevention of casse in wine.

Though pot. carb. is the most important constituent of the dip, the oil, which is present in much lesser quantity, exercises a vital influence; without it, the alkali seems unable to function properly. It is, indeed, difficult to understand how little more than $\frac{1}{4}$ per cent. of oil can play so important a part, but there is no doubt whatever as to its influence. It serves, for one thing, to keep the skin soft and pliable during drying; if absent, or in deficient proportion, the skin becomes hard and drying is retarded.

The part played by the oil is, in fact, rather obscure, as is also the state in which it is present in the dip. There is, no doubt, at least partial saponification by the alkali; the soap thus formed emulsifying

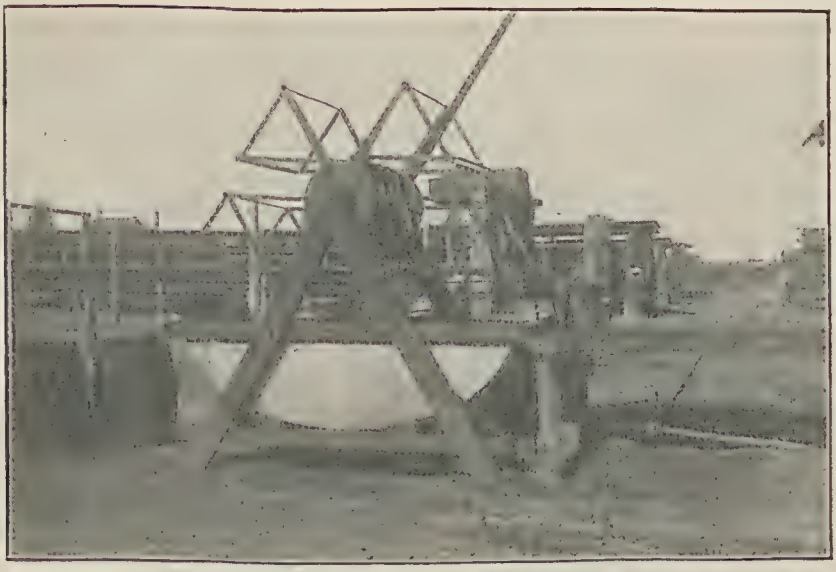


Fig. 3. Mr. S. Mansell's sultana dipping machine—each tray holds 6 dipping tins filled with grapes.

the balance of the oil. With pot. carb. containing caustic, saponification must be more extensive. Nevertheless, little difference has been observed in the behaviour of the different grades of pot. carb.

Oil is, seemingly, the main factor in drying. If in deficient proportion drying is delayed, and slow drying is largely responsible for faulty colour. Too much oil, on the other hand, retards drying and results in an ugly dull sample. Over-oiling is a serious defect. The proper proportion of oil to use thus needs careful judging.

The most striking effect of the oil is the removal of the bloom of the grape. Though the alkali no doubt plays its part, the influence of oil in this respect is most marked, and it is by noting the disappearance of the bloom that the correct proportion of oil can best be gauged. A bunch immersed for a minute in the dip, will, on withdrawal, be seen to be "coated," or deprived of its bloom to an extent varying with the strength of the dip, its oil content and the time of immersion, but

depending mainly on the oil content. When sufficiently coated the bloom has almost entirely disappeared, only a few whitish patches still showing.

The test is made by commencing with dip solution containing oil at the rate of 1 pint to 50 gallons; bunches are dipped successively, with noted additions of oil intervening, until adequate coating results. The minimum oil content is thus ascertained. The bulk of the dip should be made up with ¼ pint of oil per 50 gallons over and above the minimum.

This for the reason that, as dipping proceeds, the oil seems to be removed by the fruit in greater proportion than the pot. carb. solution. The dip thus becomes impoverished in oil.

In making the above test, the duration of immersion to be followed when dipping is in progress should be borne in mind, and adequate coating allowed for within this time.

Duration of Dip.

Many growers dip for one minute, or a few seconds over; others prolong it to two and even four minutes. One of the most successful operators dips regularly for one and a half minutes throughout the season. Considerable latitude seems permissible in this respect. There seems little objection to the fruit remaining in the dip for a minute or so after it is sufficiently coated, though very prolonged immersion might burst an odd berry. In some quarters on the other hand, it is not considered necessary to await complete coating before removal from the dip; that even if a small remnant of bloom is still visible, the oil "creeps" sufficiently to cause the bloom to soon disappear.

Complete absence of bloom is essential when the fruit is drying. It should be remembered that undipped fruit, i.e., with the bloom on, drys black.

Alterations in Dipping Plant.

Various methods have been devised to avoid inconvenience owing to the more prolonged dip. Mr. S. Mansell has patented an ingenious dipping machine on the principle of the "Ferris wheel" (*See* Fig. 3). It has a rotating frame or wheel with six suspended trays, each capable of containing six "dipping buckets" full of grapes. On revolving the wheel, each tray is, in turn, lowered into the dip trough, where it remains one and a half minutes. On leaving the dip the fruit drains until the tray reaches the loading point, where its charge is replaced by fresh fruit.

The six-tray model can dip 3,000 buckets a day. A four-tray model is also obtainable.

A yet simpler appliance is on the "scale" or "beam" principle with a tray at each end to receive the dipping buckets. These trays are alternately lowered into dip tanks situated underneath them, the weight of the fresh fruit counter-balancing that recently dipped, which is thus lifted from the dip tank with little or no effort. A variation of this type is the single lever dip tank, each tray being raised or lowered independently.

Some growers employ a dip tank in the form of a long trough, capable of containing about a dozen dipping buckets. Many growers content themselves with a large rectangular dipping tank capable of holding

twelve buckets. These are immersed and withdrawn in the same sequence, so that each remains in the dip for the necessary length of time. The extra time of dipping does not present a serious practical difficulty, nor does it cause any undue delay.

Replenishing the Dip and Maintaining its Strength.

As dipping proceeds the liquid in the tank is reduced by the removal of the solution needed to wet the fruit. It therefore needs replenishing from time to time with solution of similar strength. The amount of such removal has been estimated to be at the rate of 7 or 8 gallons for each ton of fruit dipped (Savage). After prolonged dipping the composition of the dip solution alters somewhat, owing mainly to leakage of juice from damaged grapes and from dirt, &c. brought in on the fruit. In one case it was found that commencing with a gravity of 6° Baumé, this had increased to 7° Baumé after passage, through the dip, of 2,000 buckets of grapes. This in spite of the fact that replenishing had been carried out with dip solution of the original strength (6° Baumé). Allowance must be made for such increase when checking the strength with the Baumé hydrometer. Nor should the dip be brought back to its original gravity by reduction with water, as has sometimes been suggested. After a time the dip solution becomes more or less soiled; little harm seems, so far, to have resulted from the use of dirty dip. It can, to some extent, be rectified by decantation after a night's rest, and by filtration through sand. When very dirty, it should be discarded and replaced by fresh dip.

Instead of replenishing with fresh dip solution the suggestion has been made to start on a spare dip tank full of fresh solution, after dipping has progressed for some days, and to replenish from the dip tank which has been over long in use. In this way the accumulation of foreign substances is to some extent mitigated.

The removal of oil in more than proportionate quantity as dipping proceeds has already been mentioned. To compensate this loss, some growers add a tablespoonful of oil every two hours. This, of course, in addition to replenishment with dip solution containing oil in the usual proportion. In other cases oil is added at the rate of ½ pint to 50 gallons of dip as soon as coating of the fruit is found to be inadequate.

Actual Drying—Racks or Trays—Sunscorch.

From the dip, after draining for a while, the grapes are transferred to the racks or trays where they are dried, in much the same way as is done with hot-dipped fruit. Thin spreading is imperative, if it be thick an uneven sample will result with many dark berries. Berries imprisoned in the interior of a heap of fruit tend to go black when dry. Stacking of bunches one on top of another must be avoided; in other words, spreading must not be more than one bunch thick and extra large bunches should be broken into two or even three smaller ones.

The relative merits of racks and trays has been much discussed. There is a marked difference in appearance, at the completion of drying, between fruit from racks and that from trays, the former being greenish-yellow, the latter light-brown. On the rack the fruit retains, to a large extent, its original colour, except where exposed to direct

sunlight. There is a distinct green appearance about it. This is easily removed, however, by bleaching or finishing on hessian in the sun, whereby the greenish tint is turned to gold. This finishing process thus becomes an essential feature of rack drying. It is noteworthy that the bulk of the cold-dipped fruit turned out in the 1925 season was rack dried.

An ingenious innovation is the single tier rack used by Mr. S. Mansell and shown in Fig. 4. This is not a rack in the ordinary sense, but an expedient to permit of drying the grapes on hessian spread on the hot earth, without undue risk of loss through bad weather. Drying thus on hessian had been previously found more rapid and gave a better sample than drying on trays. The risk, however, was great in case of rain; the fruit being exposed to irretrievable damage on the sodden earth.

Fig. 4. The single tier drying rack-hessian is spread on the netting, which lies flat on the earth except in case of wet weather, when it is lifted and supported by short wooden blocks. On the hessian, the dipped grapes are thinly spread.

Mr. Mansell conceived the idea of laying the hessian on wire netting strips, resting directly on the soil. The netting, in strips 100 yards long is strained at each end to stout posts. In case of rain it can be quickly lifted on to wood blocks as shown in the photo, thus removing the hessian, with the grapes on it, from the wet earth. Sultanas, thus dried, were awarded first prize at the last Mildura Horticultural Show.

It was not necessary, last season to lift the fruit off the ground, but provision for doing so would be invaluable in a rainy autumn. These new racks dry the fruit in little more than half the time needed on ordinary racks. Fruit at the extreme ends, held off the ground by the taut straining wires, took two or three days longer to dry than the main portion in actual contact with the soil.

On the ordinary drying rack (Figs. 1 and 2) any fruit exposed to direct sunlight, such as the top tier of an uncovered rack and the

exposed sides, dries of a different colour to the shaded portion. It is affected by sunscorch.

In this question of sunscorch and its varying occurrence on rack or tray one is faced with facts which at first sight seem hopelessly contradictory. The discolouration of any sun exposed fruit, on an ordinary rack, may be intense, necessitating the separation of this darker fruit from the rest of the sample; and yet Mr. Mansell's fruit, dried in full sunlight suffered no injury and was awarded first prize. How reconcile these contradictory facts? It seems to be essentially a question of the rate of drying. If this be sufficiently rapid sunscorch does not occur. Slow drying with exposure to sunlight favours it. Hence it is absent with grapes on hessian on the hot earth; of moderate intensity on wooden trays; and at its worst in the exposed portions of an ordinary rack where drying is slower.

In ordinary rack drying, sunscorch can be prevented by shading the fruit from direct sunlight during the most susceptible period, which seems to be from the third to the seventh day. Modern racks are mostly provided with a roof; a hessian cover is, however, sufficient, and the exposed side is easily shaded by a hessian curtain.

The green tint of the more or less shade-dried fruit from the rack is modified to the desired colour by bleaching, as described below.

Sunscorch is reduced by dipping and spraying with an adequate proportion of potassium carbonate and olive oil. Potassium carbonate exercises a preventive action, since it is more frequent with weaker dips. In this respect, sunscorch is the reverse of potash injury. Oil plays an even more active part in preventing it. It would appear that all grapes are not equally liable to it. Golden and milky fruit is less susceptible than the grassy-green stage.

Rapid drying is thus very essential for good colour. The type of rack exerts its influence in this direction. Close-tiered racks with tiers 6 to 7 inches apart dry more slowly than those at 12 to 14 inches apart.

The duration of drying is certainly longer with cold-dipped than with hot-dipped fruit. According to some, the time is increased by 50 per cent.; according to others, by even more. This delay is more evident late in the season as the weather gets colder; under good drying conditions it is much less noticeable. With cold-dipped fruit drying is faster on trays than on ordinary racks, and faster still on hessian on the hot earth (Mr. Mansell's special rack).

Spraying.

Drying is materially hastened by spraying during its progress with ordinary dip solution (6° Baumé) in which the proportion of oil is increased to 1 pint to 28 gallons. Such spraying is, in fact, a feature of the cold dip process.

After rain it is particularly necessary to thus renew, at the earliest possible moment, the protective oil film, without which the reappearance of strong sunlight would cause scorching and discolouration. But even under rainless conditions spraying is a current practice. The number of sprayings varies somewhat; usually two are given to the fruit on the rack and a final one after removal from it, during the bleaching or finishing on hessian. In case of rain, or, if drying is not progressing fast enough, additional spraying may be advisable. It certainly helps

drying and reduces sunscorch, but too much spraying leaves a white incrustation on the fruit, which necessitates a final washing to remove it. With less spraying such washing can be dispensed with.

Mr. Mansell sprayed three times—the first, 48 hours after spreading on rack; the second, 48 hours later; and the final one when the fruit was sufficiently dry to "pull together," when it wanted one good day or two mild days to finish.

The recommendation of the growers' meeting of 24th August last was "That spraying be done (with 6° Baumé strength and 1 pint of oil to 28 gallons) on the morning of the third day after dipping, and again three days afterwards, and a further spraying (with 3° to 4° Baumé strength) when the fruit has had one day's sunning on the hessians; that spraying be done early in the morning, and that the fruit have additional spraying in bad weather, either during or immediately following such bad weather."

Removal from Rack-Bleaching or Finishing.

Premature removal from the rack must at all costs be avoided as it is fatal to colour, as is also any handling of the fruit before it has reached a safe stage of dryness. Merely passing the hand over the partially dried fruit causes it to ultimately go dark wherever touched. When the fruit has almost attained complete or commercial dryness, i.e., within one or two days of this stage being reached, it can be handled with safety. It is then shaken through the rack in the usual way, and transferred to strips of hessian placed on the ground and exposed to direct sunlight. It is here that bleaching or finishing takes place. This is indispensable in the case of fruit dried in the ordinary type of rack, in order to eliminate the pronounced green colour characteristic of it. Under the influence of sunlight and assisted, if necessary, by further spraying, the green tint disappears, the fruit developing the desirable golden hue. Sometimes it is re-dipped before bleaching, but only in very good drying weather and in the morning; spraying is usually sufficient. On the hessians it should not be spread too thickly. Aftr spreading it is sprayed, turned and sprayed again; bleaching proceeds rapidly in good weather being sometimes completed in one day, though two are usually needed. Late in the season, when the weather is cooler, several days' exposure may be required.

The transformation effected by bleaching in this way is remarkable. Fruit which, on the rack, appears almost hopeless, can often be restored to a good quality product. Such was the case of the sample awarded third prize at last Mildura Show.

Final Washing

may or may not be necessary. If spraying was moderate no incrustation will be present to need removal. It is, no doubt, preferable to so conduct dipping and spraying operations that this desirable result is achieved, but this is not always possible, and, in many cases, excess potash may need removal.

Washing in water is unsatisfactory; it results in a dull sample. If fresh water could be used for each lot of fruit it might prove satisfactory, but when several lots must be successively dipped in the same

water this soon becomes a weak potassium carbonate solution, which removes oil from the fruit, leaving it harsh. The most satisfactory wash seems to be a weak pot. carb. solution (1° Baumé) with a pint of oil to 50 gallons of dip. Gravity should be checked from time to time with the hydrometer.

The necessary additions are mainly water and oil, pot. carb. being furnished by the fruit which is being washed.

A final wash in water containing glycerine at the rate of 1 lb. to 20 gallons has been recommended. Though the fruit is rendered brighter and more attractive, this treatment has not been extensively applied.

Washing can best be done on the morning of a fine day, it is a simple operation. The grapes, contained in a long piece of hessian the ends of which are held by two men, are rapidly washed by dipping in and out of the solution contained in a long trough. From the hessian in which it is washed the fruit is tipped sideways on to dry hessian on the ground and levelled with a special rake. Drying is very rapid; in good weather it takes about half a day. A certain amount of bleaching takes place during this final drying.

Dark Berries and their Avoidance.

The most serious complaint in connexion with cold-dipped fruit is lack of evenness. In the worst cases the fruit is a mixture of all colours, from green to brown, and even blue. Such extreme cases are rare, but it not unfrequently happens that an otherwise excellent sample, the bulk of which is of the desired golden colour is spoilt by the presence of only a small percentage of dark berries which are much more conspicuous than they would have been in the darker hot-dipped fruit.

How to avoid these dark berries is thus an important problem. They may result from several different causes, sun-scorch and potash injury, for example. Berries from the interior of a bunch and thus prevented from contact with the dip, fail to lose their bloom; these dry blue. Fruit mechanically injured during picking, handling, or even slightly damaged by oidium or mildew, dry to a dark sample. Sulphuring and spraying are very necessary to control these fungi. The Greeks attribute odd dark berries to neglect of sulphuring. The well-known tonic effect of sulphur on the growth of the vine no doubt improves the fruit, and better fruit means better colour. Soil also exerts its influence in this respect. Some blocks regularly yield fruit which dries to a better colour than that from others. Injudicious cultural and irrigation methods are often responsible for faulty constitution of the berry and bad colour in the resulting fruit. Berries showing any signs of wilt or shrivel are in this case.

The success achieved by one large grower has been attributed to his privately owned pumping plant enabling him to water at the most opportune time, instead of having to wait his turn. A converse case was that of a grower who was compelled to postpone the final watering. The vines suffered in consequence. When the water was tardily applied many berries failed to respond and dried black, quite spoiling the sample.

The cold dip is excellent for first-class fruit, but with inferior fruit the faults are accentuated—with that from salty land, for example. The hot dip has a levelling influence, good and bad are evened up—evened down is perhaps more appropriate—and the sample is not so patchy. We are told that "Wine making commences in the vineyard"; so also with the sister product, the dried grape.

To turn out a perfect sultana the fruit must be well-grown, i.e., vintaged from vines which are properly tilled and judiciously irrigated. The elimination of the dark berry is thus, to a large extent a cultural problem.

Double picking, as previously described (p. 720) is of great value; with sound "milky" and golden fruit there are no dark berries. Hand picking the finished fruit on an endless belt travelling at slow speed has also been suggested. In cases when the dark berries are not too numerous it should be economically possible, the enhanced price repaying the cost several times over.

As Regards the Future.

From the experience of the past two seasons it can be safely affirmed that the cold dip "has come to stay."

In a good drying season and with first-class fruit it turns out an excellent even sample, of the bright golden colour so much appreciated in London. The only doubt possible is as to how it will fare in a bad drying season. Rain is not so much to be feared as lack of sufficient heat for the more prolonged drying. Cold-dipped fruit will stand wetting better than hot dipped, owing to the skin being undamaged. Provided the potash-oil coating be restored, by spraying soon after, little harm results from moderate rain. As one grower significantly remarked, "With this dip, rain never troubles me."*

Slower drying would, however, be a drawback in a bad season, particularly for the final sun-bleaching of rack-dried fruit. We have seen that rapid drying is essential for bright colour. Retardation would, to some extent at least, defeat the main object of the new method.

The ultimate solution is looked for by some in de-hydration, which makes one independent of the weather. In a bad drying season, however, sun-bleaching would present difficulties: it would still be necessary, the de-hydrated fruit being shade-dried, would have a green tinge.

Last autumn, weather conditions were very favorable. The only rain experienced fell during a day and a half, early in March, 50 points being registered at Mildura.

What the future has in store for modified hot dips of the "Johnson" type is hard to say. Sultanas of very good quality were processed on these lines; some, indeed, showing little difference from first-class, cold-dipped fruit.

An outstanding feature of the 1924 drying campaign is that the majority of sultana growers have intelligently striven to improve their pack, and, in most cases, with a marked measure of success. In this improvement the cold dip has played the prime part, but it must not be forgotten that other methods have also contributed, in lesser degree, to this very desirable result.

* This grower had even found it practical to wash his grapes (cold dipped) on the rack, by spraying with water, to remove dust from the road blown on to them by a windstorm. This could not have been done safely in the case of hot-dipped fruit with its "cut" skin.

The cold-dip has also been tried in the processing of Gordo Blanco (Lexias) and Waltham Cross (Elemes). Some very good samples have resulted. The advantages, however, are less obvious than in the case of the sultana. These grapes ripen late, when drying conditions are much less favorable than earlier in the season when sultanas are ripe. For these thicker-skinned grapes, a stronger dip is favoured—about 120° B., with enough oil to coat the fruit.

Conclusion.

The foregoing review of the experience gained during the past two seasons is not intended as a final pronouncement nor as a Bulletin. There are yet several points which need elucidating, and items of treatment which require the confirmation of longer experience.

It is merely a *résumé* of numerous conversations with practical growers, and information recently made available in publications and articles.

The writer's thanks are due to many Mildura residents who have freely placed their experience at his disposal. It is gratifying to find that in Mildura there are no trade secrets. Among these must be more particularly mentioned Mr. A. V. Lyon, M.Ag.Sc., Resident Scientist at the Viticultural Research Station, Merbein, and Messrs E. G. Creaton, A. Johnston, A. Lochhead, S. Mansell and C. Plummer, who have supplied valuable information.

Mention must also be made of the report of the Conference of River Branches of the Agricultural Bureau of South Australia, held on 20th May last, which deals extensively with the subject.

LINDENOW MAIZE VARIETY COMPETITION, 1924-25.

Report of the Judge, L. C. Bartels, B.Ag.Sc., Senior Irrigation Officer, and P. D. McRae, Field Officer.

The 1924-25 Maize "Variety" Competition, conducted by the Bairnsdale Agricultural and Pastoral Society, attracted twenty entries. Like the competition of the preceding season, it affords some useful lessons.

The seed submitted by the competitors was grown side by side, and the results show that when different strains of maize from the same district are sown in adjoining plots, under similar conditions, there may be considerable differences in yields. The plants on the plots showed divergence in types, reflecting the ideas of the several farmers as to what constitutes the most productive kind of maize.

The plots were sown on 23rd October, 1924, on the farm of Mr. T. W. Murphy, at Lindenow. The seed was put in a good bed, but the weather conditions during the growing season were not favorable. The cool autumn delayed ripening, and yields were comparatively low in contrast with those of the preceding season, when high yields were the rule.

The objects of these tests are to find out the variety of maize best suited to the district over a number of years, and to encourage farmers to pay greater attention to the selection of their seed with the idea of evolving uniform types. On the average, the maize yields are not as high as they should be, and this question of yield is of main importance. When low prices prevail more efficient production becomes necessary.

The flats at Lindenow are very fertile, but they have been cropped every year for many years—in some cases for upwards of 40 years. It cannot be expected that high returns will always be maintained unless some rotation of crops is introduced, and attention paid to other factors influencing yields.

The Valley of the Mitchell at Lindenow.

The Necessity for Proper Seed Selection.

The growers at Lindenow, on the average, employ good cultivation methods. Some are beginning to use manures, but insufficient attention is paid to the very important matter of seed selection; thus, during the last two seasons, when the weather has been unfavorable for ripening the maize, most of the crops have been late. There is no doubt that earlier maize is wanted.

Ears of good weight in proportion to size, fairly regular and well matured, should be picked for seed. Best results will be obtained if the selection of ears be made at or before harvest time, so that the character of the mother plant may be observed.

The practice followed by nearly all growers is to select their seed from the crib at threshing time. The biggest ears are then sought out,

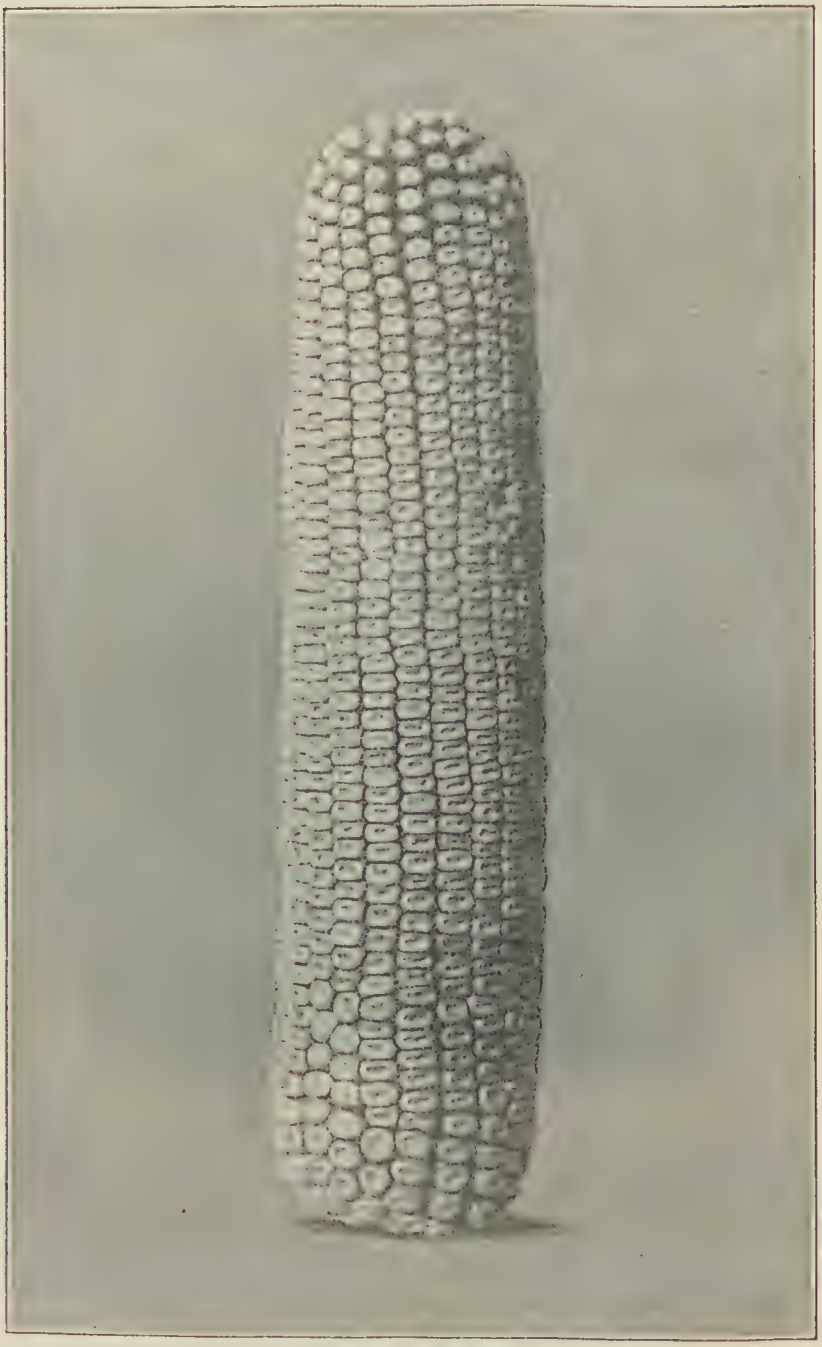
and, of course, no regard can be paid to the mother plant which bore these ears. The fact that they are large and full would suggest that they have taken longer in development. Continued selection in this way must tend to aggravate late maturity. The big ears may have formed because the plants which bore them were favoured by isolation from adjoining plants, or by having a more favorable location in the field, in which case their superiority may be only apparent.

It must be stated that there is no direct relation, as far as is apparent, between the ear of maize and the productivity of the plants it will produce. In ear to row tests, where the seed from different ears is grown in rows side by side, observations showed that there were definite features which characterized the rows as a whole. Some were tall;

Picking Time.

some short; some had thick stems; some fine stems; some were upstanding; some broken down; some early; some comparatively late. There was no uniformity in any row, and the ears varied. It has to be recognized that, however good a maize ear is, every grain in that ear may have a different pollen parent, and the seed will produce variable types.

Maize is cross-fertilized naturally. This accounts for the variability in a field of maize; no two plants are exactly alike. Some are good because, in their parentage, there has been a meeting of desirable germinal characters, but these combinations are not stable. Every field of maize contains unproductive types, which are never eliminated



A Fine Ear of Maize.

by the ordinary methods of selection, because of the mixed ancestry of the maize. Bad qualities are masked by the good ones.

Can the desirable qualities be concentrated? Maize breeders can reduce the variability by inbreeding, but as soon as inbreeding is practised undesirable qualities manifest themselves. The method must be left to the plant breeder.

If the seed of a plant of good quality has been fertilized by pollen from other plants of good quality there is an increased chance of the progeny being good. Thus quality may be maintained in a strain of maize, if care is exercised in the selection of the seed.

Filling the Crib.

Beginning with a variety which has proved itself to be productive under local conditions, the grower should endeavour to conserve the type. Some men are so obstinate that they stick to a variety when the general experience has demonstrated that it is inferior; others have no consistency, and will change their seed at every chance. Some are induced to purchase seed because of the attractive character of the grain, and others, in years like this when the maize does not develop well, will discard their strain for new seed from another locality.

It may be asserted that the locally-grown seed at Lindenow is the best material to work upon. It is obvious that not all growers have equally good seed, if for no other reason than that many are so indifferent in the matter.

Results of the 1924-25 Competition.

The results of the 1924-25 competition are given below. The outstanding feature of the competition was that the early-maturing maize attained a high place in the tests, while the late maize gave low yields. These early-maturing maize varieties are not attractive; they have small ears with small grain, but they yielded better than several of the better looking types.

The two varieties at the top of the list are mid-seasonal, and it points a lesson that this factor—time of maturity—has an important bearing on yield under the conditions at Lindenow.

Points Awarded to Competitors.

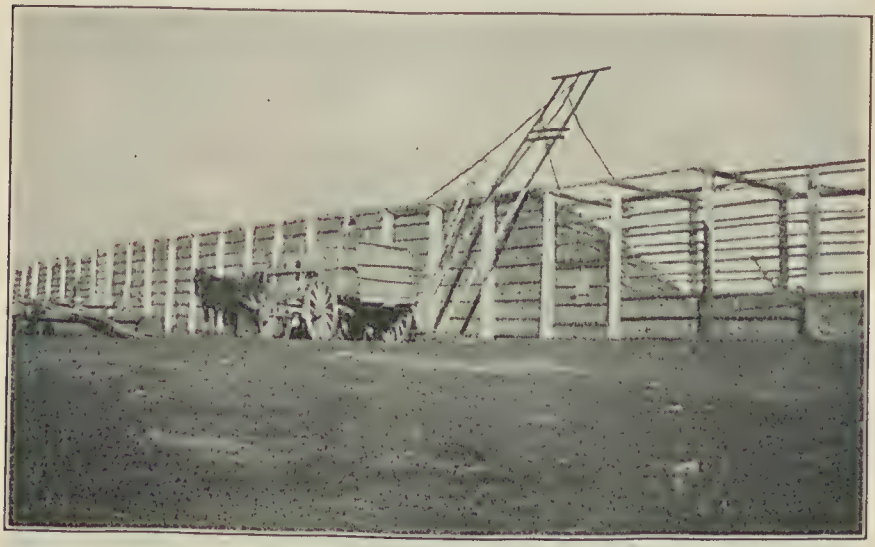
Competitor.	Scale of Points.					
	Uniformity of Plot.	Character of Plant.	Yield.	Character of Ear.	Freedom from Disease.	Total.
Possible Points ..	5	10	75	7	3	100
Telfer Bros. (Own Selection)	4	7	75	6	2	94
J. S. Murphy	4	7	72	6	2	91
H. James	4	8	67	6	2	87
S. J. Lynn	3	7	68	6	2	86
F. M. Murphy	4	7	68	5	2	86
H. J. Hauschildt ..	4	7	66	6	2	85
J. H. Evans	4	7	67	5	2	85
M. Luby	4	7	66	6	2	85
C. Fountain	4	7	66	5	1	83
J. Lavell	4	8	64	5	2	83
Telfer Bros. (Imported Goldmine)	4	9	63	5	2	83
G. Ray	4	7	66	5	1	83
J. D. Alexander	4	8	64	5	1	82
F. W. Smith	4	7	61	5	2	79
Ross Bros.	4	7	61	5	1	78
T. W. Murphy	4	7	60	5	2	78
W. Kerton	4	7	60	5	1	77
F. W. Smith	4	8	57	6	2	77
W. A. Keating	4	6	51	4	1	66
D. Hurley	3	6	49	4	2	64

Comments on the Best Entries.

Messrs. Telfer Brothers' Yellow Dent maize has been evolved by steady selection from an original importation from America. The plants grew comparatively tall, with strong stalks, and an abundance of foliage. It is a mid-seasonal strain. At harvest the ears from this plot were the most uniform of all; they were of nice shape and size, and were well ripened and well filled. The grain was closely set, and generally of good size—large, square-topped, and long. The indentation was shallow and smooth, but there was some beaked grain. A little dry rot was apparent. Yield, 62 bushels per acre.

Mr. J. S. Murphy's entry produced maize rather tall, and inclined to weakness in the stalk. The stalks were of medium thickness, flaggy, with the ears well placed and hanging. For the most part this maize was mid-seasonal. The ears produced made a nice show. They were of moderate size and good shape, fairly regular and uniform in shape and colour. The grain was of a golden yellow colour, somewhat variable, but it made a good sample. It was long and had a deep dent; some of the grains were prickly. This maize was easily threshed. It showed very little disease.

Mr. H. James's entry of early Yellow Dent was a distinct type, producing short upright plants, which matured very early, and the maize was ready for picking a month before the other entries. One disadvantage was that many of the ears were placed too low for easy picking.



A partially-filled Crib.

The ears were small, but well formed and compact. The grain was small, with a smooth shallow dent. This variety yielded much higher than its appearance would lead one to expect. It was in marked contrast to the tall, upright Craig Mitchell maize entered by Mr. W. Keating, and grown on an adjoining plot. This latter maize was very late, and was handicapped by the seasonal conditions.

Mr. J. S. Lynn's entry was similar to Mr. James's, but it showed signs of admixture with other varieties, and, as in the case of Mr. James's, it carried some smut infection.

Mr. F. M. Murphy's entry grew tall, leafy plants, uniform, and, for the most part, upstanding, although the stalks were of medium thickness. The ears were variable in colour, but well filled and matured. The grain was of good shape. Dry rot showed in some ears.

PLUM AND PRUNE CULTURE.

By J. M. Ward, Superintendent of Horticulture.

(Continued from page 671.)

Varieties to Plant.

There are so many really good commercial kinds of plums and prunes worth planting that it becomes a difficult matter to make a selection of, say, six or twelve varieties.

Fig. 18. Branches of Ballena, showing fruiting habits.

Before arriving at any definite conclusion in the matter of selection the intending planter should first consider his markets, i.e., fresh-fruit market; canning and jam factories; dried-fruit factories.

Fig. 19. Fruit of the Ballena plum.

If the firstnamed is to be catered for, the grower should consider the planting of early, midseason, and late kinds, so that his marketing season may be spread over a fairly long period. If for the factory

Fig. 20. Showing growing habit of Formosa.

trade, then it would be a wise policy to consult with the management of the canneries or jam factories, as the case may be, for they have preferences for certain varieties, as they are in the position to know

Fig. 21. Fruit of Formosa.

Fig. 22. Fruit of Santa Rosa.

the requirements of the public. In regard to growing prunes for drying purposes, it is more a matter of producing those kinds which do best in the district where it is proposed to plant out.

The following is a short description of most of the commercial varieties grown in the State:—

Fig. 23. A Santa Rosa plum tree.

Japanese Type (*Prunus triflora*).

Abundance (*Botan*).—This is a fairly well-known variety, and its worth was, to some extent, over-estimated in Canada and the United States of America. In most districts it is a heavy and regular bearer.

The fruit is soft, and rots easily, and does not carry well. It is medium to large in size, and owing to its handsome red colour is attractive to the average amateur grower. The tree is a fairly vigorous grower, and adapts itself to many different kinds of soil. It is an early variety, and has a short season. It cannot be recommended for commercial planting to any extent.

Fig. 24. October Purple.

Apple.—Very large, striped and mottled when partly ripe; upon reaching maturity becomes deep reddish-purple. Flesh purplish-red, like Satsuma, but sweeter and more tender. Stone small and clinging. Good keeper and carries well. Tree spreading, medium size, prolific bearer. Blossoms early.

Ballena.—Very large; early; crimson in colour; firm flesh, pale yellow; flavour fair. Bears well; strong upright grower.

Burbank.—Most fruit-growers are familiar with "Burbank." It was imported into California by Luther Burbank and named after him. From California it was brought to Australia. The tree is a vigorous grower, and its spreading branches are most characteristic of this variety. It is a heavy bearer, and does well in most parts of Victoria; it comes into bearing at an early age. The fruit is of a rich cherry-red, slightly mottled with yellow, and freely dotted with the same tint; flesh deep yellow, juicy, sweet, and has an agreeable flavour; the pit is very small when compared with the amount of flesh surrounding it.

Fig. 25. A close-up view of a Satsuma plum tree, showing fruiting and branching habits.

This variety carries well to market, but whilst it is a fairly good plum for the fresh-fruit market, it is not favoured for jam or canning purposes.

Climax.—A large, heart-shaped, attractive-looking plum; dark-red in colour, with varied-sized yellow dots. Yellow flesh, sweet and rich with free stone. It ripens fairly rapidly, and requires careful handling. It is usually a regular bearer.

Federation.—This plum resembles Wickson, but the flesh is much firmer. Colour, crimson with mottled skin. Flesh, pale yellow, sweet, juicy. Midseason; heavy cropper. Compact growth, fairly vigorous.

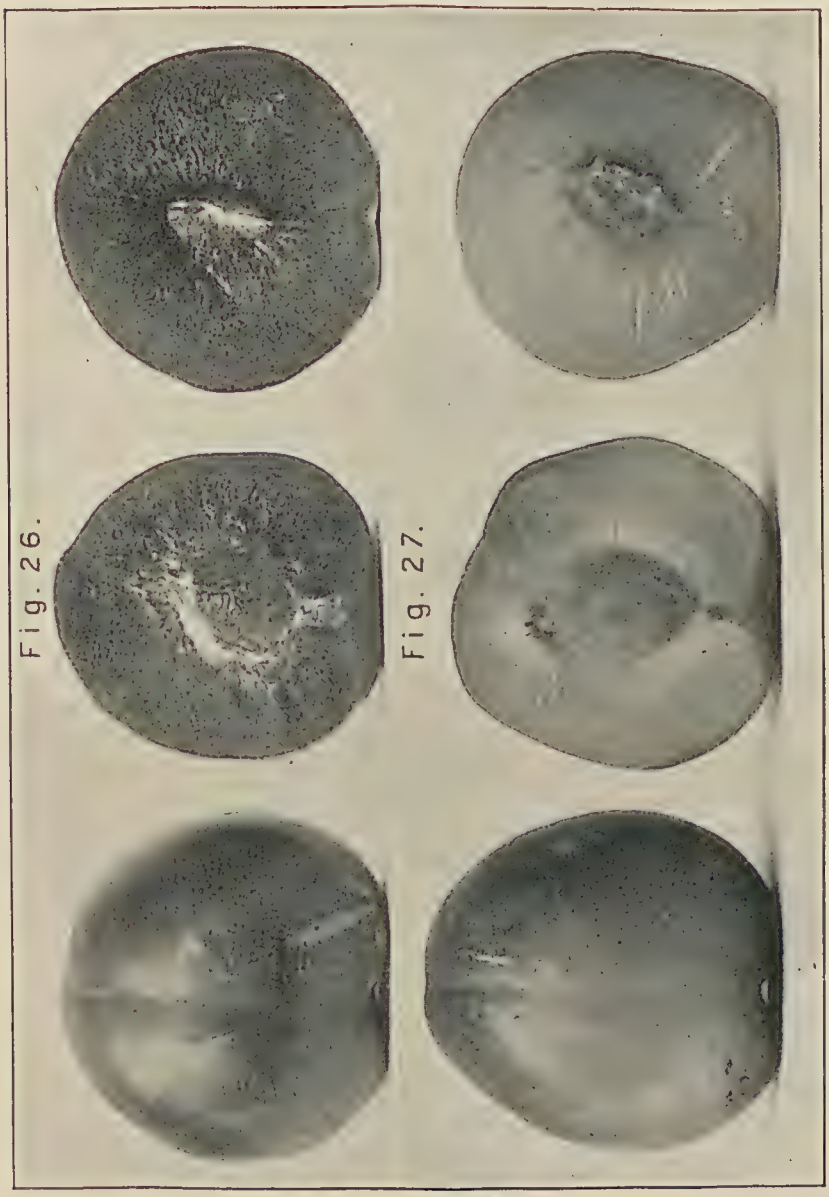


Fig 26. Fruit of Satsuma.

Fig. 27. Fruit of the Wickson plum tree.

Formosa.—This is one of the early ripening varieties. The fruit is large, of excellent eating quality, attractive, carries well. It is usually a poor cropper unless pollenized with other varieties, particularly Santa Rosa and Wickson. It seems to crop better when top-worked to an old tree. Colour, yellow with a pale bloom until nearly ripe, turning to a clear rich red; flesh pale yellow, firm, sweet; semi-free-stone. See Figs. 20 and 21.

Gaviota.—Fruit very large, attractive, of good-eating quality, fair in texture, keeps and ships well. Tree blossoms and fruits late (after midseason). On account of its firm flesh the fruit may be harvested over a long season, and if picked when well ripened will still carry well. Colour, dark-red over yellow ground. Flesh, yellow, firm, sweet. Very small stone. The tree is a vigorous grower, and, like many other varieties of plums, is a regular bearer when pollenized with other varieties which blossom at the same period.

Kelsey.—This variety was introduced into California from Japan in 1870, and is looked upon in California as a first-rate shipping plum. Fruit is rather of good-eating quality, large and heart-shaped, with a distinct suture on one side from stem to apex. Colour, mixed yellow and purple which vary in depth, covered with a bloom; flesh yellow, very firm, and clings to the stone, which is rather small. Tree fairly vigorous and upright grower. Crops early, and usually a heavy bearer.

October Purple.—Large, heart-shaped, somewhat oblate; colour, dark purple in varied shades. Flesh yellow, firm, juicy, and very good; stone small, but clings to flesh. A vigorous growing tree, which usually crops well. A good shipper. See Fig. 24 for habits of growth.

Santa Rosa.—Fruit large and very attractive, purplish crimson in colour, having dark-red flesh of fine-eating quality, and carries well to market. Blooms early, and can be pollenized with Wickson. The tree is a vigorous, compact, upright grower. Fruit is harvested a little before midseason. See Figs. 22 and 23.

Satsuma.—This is a well-known variety, and commonly called the "Blood plum" on account of its dark purplish red-coloured flesh. The fruit is of good size and dark-red in colour. It is of good flavour, but sub-acid for dessert; much favoured for jam and culinary purposes. The tree grows vigorously and is a fairly regular bearer. See Figs. 25 and 26.

Shiro.—This is an early plum, and on this account is favoured by a number of growers. The fruit is fairly large. Yellow in colour, with flesh so clear that it is semi-transparent. The tree grows well, and bears heavily.

Wright's Early.—As the name denotes, this is an early variety, and is one of the first to ripen. The fruit is almost identical with Burbank, except that the flavour is not quite so rich. Colour, light-red with a good bloom; flesh, yellow, juicy, medium sweet. Carries well. Tree vigorous, erect growth.

(*To be continued.*)

STANDARD HERD TEST.

Report for Quarter ended 30th September, 1925.

In the following is set out the records of all cows which completed a lactation during the quarter. The number is 360, of which 211 qualify for the certificate.

The amount of butter fat required for qualification varies according to the age of the animal (up to 5 years at time of calving), the standards being as follow:—

Junior 2 year old (under 2½ years at time of calving)	200 lb. butter fat.
Senior 2 year old (between 2½ and 3 years at time of calving)	225 lb. butter fat.
Junior 3 year old (between 3 and 3½ years at time of calving)	250 lb. butter fat.
Senior 3 year old (between 3½ and 4 years at time of calving)	275 lb. butter fat.
Junior 4 year old (between 4 and 4½ years at time of calving)	300 lb. butter fat.
Senior 4 year old (between 4½ and 5 years at time of calving)	325 lb. butter fat.
Mature cow 5 years and over	350 lb. butter fat.

Owner.	No. completed Test.	No. Certificated.	Breed.	Name of Cow.	Age Standard.	Herd Book No.	Date of Calving.	Days in Test.	Milk last Day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Previous Yields of Butter Fat in lbs.
									lb.	lb.		lb.	lb.	
S. T. Algie, Murraydale	2	2	Shorthorn	Carnation of Swan Valley ..	Jr. 2 yrs.	..	13.10.24	273	14	5,433	3·86	209·76	200	
				Daisy 5th	Mature	..	24.10.24	273	22	10,971	3·68	403·59	350	253, 384
H. Allez, Moama	1	Nil	Friesian	Halecote Patchware ..	Jr. 3 yrs.	1283	18.12.24	225	4	4,405	3·15	138·81	250	
Alston Estate, Cobram	1	1	Jersey ..	Princess Marie of Aberdour ..	Jr. 2 yrs.	17385	9.12.24	273	15	5,207	5·29	280·95	200	
J. Anderson, jun., Lyndhurst	1	1	Jersey ..	Linda 52nd of Kingsvale ..	Mature	9177	23.11.24	273	25	9,088	5·31	482·14	350	365, 441, 462
W. H. Atherton, Murraydale	1	1	Jersey ..	Letitia of Somerville ..	Sr. 2 yrs.	14945	9.11.24	273	9	4,009	6·19	248·20	225	

Standard Herd Test—*continued.*

Owner.	No. completed Test.	No. Certificated.	Breed.	Name of Cow.	Age Standard.	Herd Book No.	Date of Calving.	Days in Test.	Milk last Day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Previous Yields of Butter Fat in lbs.
									lb.	lb.		lb.	lb.	
W. K. Atkinson, Swan Hill	11	6	Shorthorn	Duchess 2nd of Willow Park..	Sr. 3 yrs.	11452	3.10.24	253	4	6,057	3·60	218·25	275	220, 233
				Trilby of Willow Park ..	Jr. 2 yrs.	..	8.10.24	273	5½	5,482	4·37	239·65	200	
				Princess 2nd of Willow Park..	Jr. 4 yrs.	12513	8.10.24	273	5	6,831	4·23	288·79	300	205, 240
				Blush of Willow Park ..	Mature	11069	8.10.24	273	30	12,631	3·91	494·12	350	320, 368, 478
				Countess of Willow Park ..	Mature	9250	9.10.24	273	5½	8,443	4·05	342·32	350	264, 330, 382, 359
				Damsel of Willow Park ..	Jr. 3 yrs.	..	26.10.24	273	18½	9,378	4·36	409·00	250	338
				Princess of Willow Park ..	Mature	12510	5.11.24	273	24½	9,675	3·58	346·45	350	256, 368, 370
				Dairymaid of Willow Park ..	Mature	..	6.11.24	268	4	6,066	4·71	285·63	350	283
				Dainty of Willow Park ..	Sr. 2 yrs.	..	16.11.24	273	17½	6,540	4·33	283·20	225	240
				Fairy of Willow Park ..	Jr. 3 yrs.	..	22.11.24	273	38	13,225	3·99	527·52	250	380
				Cherry of Willow Park ..	Mature	9198	29.11.24	273	51½	16,245	3·83	622·69	350	325, 474, 636, 597
F. Austin, Lara	3	3	Jersey ..	Cora of Linga Longa ..	Jr. 2 yrs.	15430	23.10.24	273	16	5,464	6·21	339·13	200	
				Mercedes Neatest of Avalon ..	Sr. 2 yrs.	12866	28.10.24	273	10½	4,773	6·32	301·55	225	293
				Beauty of Linga Longa ..	Jr. 2 yrs.	15429	7.11.24	273	10½	5,016	6·45	323·73	200	
W. H. Axford, Camperdown	3	1	Jersey ..	Lady Elector 9th of Melrose	Sr. 4 yrs.	11512	20.10.24	273	15	6,255	5·88	367·79	325	337
				Beauty of Warenda ..	Jr. 4 yrs.	11223	27.10.24	273	7	4,153	7·00	290·89	300	
				May 2nd of Milksham Park ..	Sr. 4 yrs.	9834	7.12.24	273	10	6,558	4·78	313·42	325	
Baillieu Bros., Echuca	1	Nil	Jersey ..	Maitlands Canary of Lesterfield	Mature	6982	27.12.24	273	..	5,299	5·79	306·04	350	251, 278, 156, 270
J. Baker, Gheringhap	2	Nil	Red Poll	Karong Belle 2nd	Mature	503D	30.9.24	273	14	5,889	4·48	263·61	350	230
				Karong Rose 7th	Jr. 3 yrs.	920D	26.12.24	273	..	5,802	4·25	246·71	250	170
J. J. Baker, Bannockburn	1	1	Jersey ..	Trixie 2nd of Linden ..	Mature	7538	18.12.24	273	..	8,118	4·75	385·82	350	419
Mrs. I. Beard, Outtrim	1	1	Jersey ..	Shadow of Linga Longa ..	Sr. 3 yrs.	11238	13.10.24	273	6½	5,830	5·67	330·19	275	304, 294

Standard Herd Test—*continued.*

Owner.	No. completed Test.	No. Certificated.	Breed.	Name of Cow.	Age Standard.	Herd Book No.	Date of Calving.	Days in Test.	Milk last Day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Previous Yields of Butter Fat in lbs.
									lb.	lb.		lb.	lb.	
F. W. Beischer, Bendigo	3	1	Jersey ..	Goldfield Flower	Sr. 2 yrs.	15448	28.9.24	261†	13½	4,539	5·05	229·21	225	
				Blossom of Woodside ..	Mature	6391	24.10.24	219†	12	4,425	5·32	235·52	350	311, 247
				Tragedy of Linden	Mature	7537	3.11.24	209†	14½	5,085	4·72	239·99	350	348, 285
F. Bidgood, Staghorn Flat	2	2	Jersey ..	Fox's Clementine 3rd of Staghorn	Jr. 2 yrs.	15343	6.10.24	273	17½	6,144	5·09	312·93	200	
				Fairy's Hope of Staghorn ..	Jr. 2 yrs.	14127	8.11.24	273	19½	5,985	4·69	280·84	200	
Mrs. A. Black, Noorat	1	1	..	Noorat Gossamer	Jr. 2 yrs.	16217	11.10.24	273	11	4,840	5·65	273·55	200	
A. A. Broad, Sutton Grange	5	4	Jersey ..	Defender's Favourite of Boorene	Mature	9225	19.10.24	273	17	8,676	5·19	450·46	350	418, 381, 409
				Daisy 2nd of Grangelea ..	Jr. 3 yrs.	14128	23.10.24	273	15½	6,300	6·24	393·01	250	294
				Dainty of Grangelea ..	Jr. 2 yrs.	15453	28.10.24	273	15	5,175	5·71	295·70	200	
				Princess 2nd of Grangelea ..	Jr. 3 yrs.	14130	9.11.24	273	17½	6,907	5·47	377·71	250	295
				Princess of Grangelea ..	Mature	9226	11.11.24	273	15½	6,588	4·86	319·97	350	327, 348
W. C. Cayley, Werribee	5	5	Ayrshire	Joy Queen of Riversdale ..	Sr. 2 yrs.	13304	8·11·24	273	30	9,585	4·32	413·98	225	
				Princess of Riversdale ..	Sr. 2 yrs.	13307	21.11.24	273	12	6,051	3·75	226·62	225	
				Miss Prim of Riversdale ..	Jr. 2 yrs.	13506	26.11.24	273	12	5,359	4·23	226·72	200	
				Majesty of Riversdale ..	Sr. 2 yrs.	13305	21.12.24	273	15	6,162	4·31	265·46	225	
				Bloom of Banyule	Mature	6750	26.12.24	273	21½	9,379	4·08	382·34	350	315
P. Chirnside, Oakleigh	1	1	Jersey ..	Phillis 2nd of Warenda ..	Mature	7195	22.12.24	273	16½	7,711	5·38	414·64	350	310, 373, 428, 527

† Withdrawn before completion of term.

STANDARD HERD TEST—*continued.*

Owner.	No. completed Test.	No. Certificated.	Breed.	Name of Cow.	Age Standard.	Herd Book No.	Date of Calving.	Days in Test.	Milk last Day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Previous Yields of Butter Fat in lbs.
									lb.	lb.		lb.	lb.	
J. Clyne, Upper Maffra West	3	3	Jersey ..	Cora 2nd of Elouera ..	Jr. 2 yrs.	13394	28.9.24	273	16	4,770	5·98	285·03	200	
				Phyllis of Brucevale ..	Jr. 2 yrs.	15469	1.10.24	273	15	5,508	5·55	305·74	200	
				Lassie of Elouera	Sr. 2 yrs.	12236	7.11.24	273	21½	6,469	6·21	401·48	225	
Cockbill Bros., Rockbank	8	1	Ayrshire	Belle of Wethersdane ..	Mature	7438	6.10.24	273	4	4,170	4·05	169·03	350	188
				Perfect of Wethersdane ..	Jr. 4 yrs.	9620	26.10.24	273	4½	4,932	4·32	212·83	300	110
				Gaybelle of Wethersdane ..	Mature	9607	8.11.24	273	18½	8,044	4·27	343·11	350	276, 137
				Blossom of Wethersdane ..	Mature	9592	12.11.24	273	18½	8,221	3·99	328·21	350	204, 112
				Mona of Wethersdane ..	Mature	9618	15.11.24	273	4½	6,480	4·07	263·74	350	213, 90
				Fashion of Warrook ..	Mature	5171	16.11.24	273	12	7,332	4·63	339·50	350	269, 319, 299, 256, 216
				Fulham Fashion	Sr. 2 yrs.	8900	18.11.24	273	25½	8,676	4·06	352·22	225	
				Sylvia of Burnside ..	Mature	8893	8.12.24	271	4	8,160	3·55	289·77	350	261
Agricultural High School, Colac	1	Nil	Friesian	Dominion Woodnymph ..	Mature	988	17.10.24	273	11	8,233	3·08	253·81	350	336, 329, 323, 285, 346
E. A. Dennis, Swanpool	6	5	Jersey ..	Lily 6th of Melrose ..	Mature	5552	28.9.24	273	17	7,396	5·73	423·48	350	314, 360, 472, 406
				Jenny Lind 16th of Melrose ..	Sr. 4 yrs.	10196	30.9.24	196	4	2,721	6·09	165·58	325	241, 255, 288
				Keepsake of Tarnpirr ..	Mature	7056	1.10.24	273	16½	8,437	5·56	468·92	350	294, 304, 375
				Norah of Billabong ..	Jr. 2 yrs.	15024	2.10.24	273	11	4,261	5·02	214·09	200	
				Foxglove 3rd of Tarnpirr ..	Sr. 4 yrs.	10193	12.10.24	273	12½	6,414	5·58	358·13	325	265, 370
				Dauphine of Springhurst ..	Mature	6202	21.10.24	273	7	7,107	5·48	389·37	350	251, 260, 365, 370, 448
Department of Agriculture, Werribee	1	1	Friesian	Victoria Freemartin ..	Jr. 2 yrs.	Vol. 6	18.11.24	273	36	10,589	3·69	391·08	200	
Department of Agriculture, Burnley	1	1	Friesian	Dominion Hyacinth ..	Mature	374	28.9.24	273	24	11,082	4·33	479·52	350	448, 479, 448, 536, 519

STANDARD HERD TEST—*continued.*

Owner.	No. completed Test.	No. Certificated.	Breed.	Name of Cow.	Age Standard.	Herd Book No.	Date of Calving.	Days in Test.	Milk last Day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Previous Yields of Butter Fat in lbs.
									lb.	lb.		lb.	lb.	
Department of Agriculture, Werribee	14	11	Red Poll	Pico	Mature	250A	27.9.24	273	11	7,932	4·18	331·27	350	279, 383, 387
				Victoria Ghenta	Jr. 3 yrs.	793B	1.10.24	273	14	4,753	4·35	206·83	250	321
				Victoria Brighteye	Sr. 2 yrs.	788B	7.10.24	273	17½	6,772	5·18	350·53	225	
				Victoria Bellbird	Sr. 2 yrs.	714A	14.10.24	273	13	6,427	5·25	337·43	225	
				Victoria Stripe	Sr. 2 yrs.	723A	17.10.24	273	21	7,242	4·07	294·80	225	
				Victoria Rose Regal ..	Jr. 3 yrs.	560AA	23.10.24	273	4	4,249	4·25	180·55	250	
				Victoria Maple Leaf ..	Sr. 3 yrs.	719A	30.10.24	273	13	7,719	4·16	321·04	275	285
				Victoria Coronation ..	Sr. 3 yrs.	792B	31.10.24	273	10	6,636	4·45	295·16	275	308.
				Victoria Bellona	Jr. 3 yrs.	787B	7.11.24	273	13½	5,662	5·12	290·02	250	
				Victoria Smyrna	Jr. 2 yrs.	1161A	14.11.24	273	13½	5,203	4·43	230·74	200	
				Victoria Veloutine	Sr. 3 yrs.	561AA	16.11.24	273	25	9,079	3·64	330·41	275	201
				Victoria Blue Ribbon ..	Jr. 2 yrs.	1149A	16.11.24	273	14½	5,070	4·89	248·10	200	
				Victoria Magnolia	Jr. 2 yrs.	1246B	23.11.24	273	17	7,518	4·39	330·17	200	
				Victoria Velvicene	Jr. 2 yrs.	968AA	29.11.24	273	17¼	5,692	4·74	270·02	200	
H. Dittman, Kyneton	1	Nil	Jersey ..	Renard Lily	Mature	5140	10.11.24	240	15	5,700	5·03	286·84	350	372
Dickinson Bros., Sebastopol	3	3	Friesian	Ashby Cecelia	Jr. 2 yrs.	1166	29.10.24	273	32	7,933	3·79	300·87	200	
				Queenie 2nd of Ashby ..	Jr. 3 yrs.	1007	11.11.24	273	27	9,510	3·68	350·41	250	
				Ashby Phyllis 5th	Jr. 2 yrs.	1171	21.11.24	273	32	9,136	3·37	307·84	200	
Agricultural College, Dookie	7	4	Ayrshire	Coral of Dookie	Mature	3814	28.9.24	273	22	8,823	4·00	352·05	350	
				Bloom of Medburn Grove ..	Sr. 2 yrs.	11577	9.10.24	273	9	4,377	4·69	205·24	225	
				Ditto of Medburn Grove ..	Sr. 2 yrs.	11579	14.10.24	273	4½	5,656	4·53	256·34	225	
				Pattie of Dookie	Mature	3819	18.10.24	251	4	5,820	4·48	260·45	350	
				Scotswood Question ..	Jr. 3 yrs.	10315	28.10.24	273	5	5,602	4·77	267·10	210	210
				Adella of Inverleigh ..	Sr. 4 yrs.	7706	17.11.24	273	..	8,874	4·29	380·65	325	267, 344
				Scotswood Mistletoe ..	Jr. 4 yrs.	10309	14.12.24	273	4½	5,322	4·23	224·11	300	.
Dunbar Bros., Carlsruhe	1	1	Friesian	Bolobek Juliet	Sr. 2 yrs.	1193	30.11.24	273	19	9,181	3·36	308·53	225	

STANDARD HERD TEST—*continued.*

Owner.	No. completed Test.	No. Certificated.	Breed.	Name of Cow.	Age Standard.	Herd Book No.	Date of Calving.	Days in Test.	Milk last Day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Previous Yields of Butter Fat in lbs.
									lb.	lb.		lb.	lb.	
A. E. Ellis, Archie's Creek	1	1	Jersey ..	Beatrice of Holbrook ..	Jr. 3 yrs.	12903	23.11.24	273	10	4,890	6·54	320·01	250	295
G. Esler, Tongala	3	2	Jersey ..	Canary of Tuerong	Mature	10479	5.10.24	273	17½	7,341	5·21	382·30	350	265, 290, 288
				Jubilee Dahlia	Sr. 4 yrs.	10451	10.10.24	273	4	6,994	4·62	322·91	325	148, 164, 236
				Floss of Tuerong	Mature	10480	9.11.24	273	11½	6,712	5·34	358·17	350	256, 290, 298
Evans Bros., Lima East	4	1	Red Poll	Flowing Vale Merval ..	Jr. 3 yrs.	588AA	9.10.24	273	9	4,887	4·71	230·19	250	137
				Flowing Vale Violetta ..	Jr. 3 yrs.	1310C	10.10.24	273	6	6,187	4·86	300·86	250	238
				Merven	Jr. 4 yrs.	133AA	13.10.24	273	10	7,966	3·70	294·39	300	194, 281
				Flowing Vale Vellum ..	Mature	880C	30.10.24	212	4	6,030	3·91	236·04	350	208, 271
R. Faragher, Koroit	3	1	Jersey ..	Bell of Mona Bank ..	Sr. 3 yrs.	11399	28.9.24	273	8	5,547	4·51	250·13	275	248, 235
				Bright Jewel 2nd of Mona Bank	Jr. 2 yrs.	15486	29.9.24	266	4	3,159	4·84	152·80	200	
				Bright Jewel of Mona Bank ..	Jr. 3 yrs.	13206	5.11.24	273	6½	4,969	5·09	252·89	250	197
J. N. Ferguson, Glenormiston Nth.	2	2	Friesian	Burnbank Woodcrest Marchioness	Sr. 2 yrs.	1522	3.11.24	273	45½	16,398*	3·59	588·36	225	
				Glencoe Mercedes Johanna ..	Sr. 2 yrs.	..	16.11.24	273	20	7,329	3·78	277·18	225	
T. R. Findlay, Leitchville	2	2	Jersey ..	Lucy Grey of Colac	Mature	9352	7.10.24	273	16½	9,627	4·87	469·16	350	357, 389, 488
				Perree's Capture of Leven Brae	Jr. 2 yrs.	16265	1.12.24	273	15	4,737	4·57	216·52	200	
Finn Bros., Bundoora	2	2	Jersey ..	Princess Royal of Springhurst	Mature	5403	27·9·24	273	12	7,951	5·21	414·27	350	294, 334, 421, 461, 506, 563
				Tulip 2nd of Meridale ..	Mature	9358	20.10.24	273	14	9,087	4·85	440·54	350	305, 358, 407, 461

* Milked thrice daily.

STANDARD HERD TEST—*continued.*

Owner.	No. completed Test.	No. Certificated.	Breed.	Name of Cow.	Age Standard.	Herd Book No.	Date of Calving.	Days in Test.	Milk last Day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Previous Yields of Butter Fat in lbs.
									lb.	lb.		lb.	lb.	
Flack and Sewell, Berwick	14	11	Friesian	Burnbank Bainfield Patch ..	Jr. 3 yrs.	1514	3.10.24	273	37	15,591*	3·81	606·75	250	390
				Burnbank Inka Segis Iona ..	Jr. 3 yrs.	1205	6.10.24	273	13	8,266	3·24	268·10	250	
				Ashyln 85	Sr. 4 yrs.	1095	12.10.24	273	23½	8,664	3·56	308·53	325	260, 250, 291
				Leonora Canary (imp.) ..	Mature	547	17.10.24	273	32½	16,254*	4·10	666·37	350	343, 329, 324
				Dominion Violet Fobes ..	Mature	255	22.10.24	273	22	13,014	3·01	391·77	350	466, 308, 484, 465, 498, 409
				Burnbank Woodcrest Fayne ..	Mature	1217	6.11.24	273	11	10,707	3·14	336·58	350	270, 365
				Burnbank Inka Sylvia Violet	Jr. 4 yrs.	1106	23.11.24	273	4	13,228*	4·37	578·26	300	297, 400
				Burnbank Sylvia Posch ..	Jr. 4 yrs.	1105	27.11.24	273	35	15,432*	3·29	508·73	300	257, 349
				Rosevale Cordele Posch ..	Sr. 3 yrs.	1378	5.12.24	273	34½	16,465*	3·27	538·53	275	371, 444
				Burnbank Woodcrest Segis ..	Mature	1085	6.12.24	273	20	14,526*	3·78	549·04	350	386, 460
				Burnbank Inka Sylvia Flower	Jr. 4 yrs.	1107	20.12.24	273	14½	8,518	4·12	350·85	300	247, 344
				Westmere Pontiac Lassie ..	Jr. 2 yrs.	1713	23.12.24	273	8½	6,402	3·65	233·84	200	
				Westmere Pontiac Ormsby ..	Jr. 2 yrs.	1715	25.12.24	273	14½	7,437	3·70	275·31	200	
				Winlaton Jean De Kol ..	Sr. 3 yrs.	1440	27.12.24	273	18	7,725	3·35	258·84	275	
A. W. Fox, Dundonnell	1	1	Friesian	St. Albans Longbeach Lady Victoria	Jr. 2 yrs.	..	28·9·24	273	..	6,780	3·20	217·15	200	
Mrs. M. and W. A. Francis, Kilcunda	4	..	..	Elena of Springfield ..	Mature	4967	11.10.24	230	4	6,390	4·53	289·42	350	232, 213, 229, 244, 287
				Choice of Hillcrest	Jr. 3 yrs.	9081	17.11.24	237	4	4,167	4·93	205·52	250	153
				Lelia of Hillcrest	Sr. 3 yrs.	9083	21.11.24	223	4	6,390	4·07	260·18	275	189, 209
				Countess of Hillcrest ..	Sr. 3 yrs.	9082	23.11.24	240	4	4,650	4·82	224·16	275	174
M. Galbraith, Tyers	2	..	..	Dahlia of Retreat	Mature	4324	12.10.24	273	15	8,196	4·23	346·62	350	253, 294, 181
				Daphne of Mount Hope ..	Mature	7293	17.10.24	273	7	8,343	3·98	332·33	350	183, 159
G. Gange, Werribee	4	..	Ayrshire	Princess 2nd of Roseleigh ..	Jr. 2 yrs.	13481	1.10.24	273	4	4,791	3·73	178·84	200	
				Aileen of Roseleigh ..	Jr. 2 yrs.	13474	12.10.24	257	4	4,402	4·25	187·20	200	
				Sunlight of Roseleigh ..	Jr. 3 yrs.	12110	21.10.24	201†	8½	5,701	4·07	231·87	250	232
				Rosary of Gowrie Park ..	Jr. 3 yrs.	13482	22.10.24	163†	6½	5,250	3·81	200·32	250	240

* Milked thrice daily.

† Withdrawn before completion of term.

Standard Herd Test—*continued.*

Owner.	No. completed Test.	No. Certificated.	Breed.	Name of Cow.	Age Standard.	Herd Book No.	Date of Calving.	Days in Test.	Milk last Day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Previous Yields of Butter Fat in lbs.
									lb.	lb.		lb.	lb.	
Geelong Harbour Trust, Marshall	11	2	Ayrshire	Shiela of Sparrovale ..	Jr. 3 yrs.	9109	27.9.24	259	4	5,064	4·61	233.66	250	210
				Mignonette of Sparrovale ..	Jr. 3 yrs.	9100	4.10.24	273	11	5,398	4·61	248·94	250	181
				Belladonna of Sparrovale ..	Jr. 4 yrs.	9092	7.10.24	273	13	6,909	4·37	301·65	300	242
				Rosalind of Sparrovale ..	Jr. 3 yrs.	9108	11.10.24	273	9½	5,070	4·65	235·65	250	171
				Gipsy Girl of Sparrovale ..	Mature	3894	13.10.24	273	5½	6,165	4·26	262·80	350	324, 372, 309, 324, 354, 282
				Viola of Sparrovale ..	Mature	3908	16.10.24	273	15	8,301	4·31	357·47	350	352, 434, 458, 260
				Bud of Sparrovale	Jr. 4 yrs.	9094	20.10.24	273	7	4,794	5·67	271·94	300	239, 281
				Waratah of Sparrovale ..	Jr. 3 yrs.	9110	24.10.24	240†	6½	4,845	4·63	224·30	250	211
				Nora of Sparrovale ..	Mature	7316	10.11.24	273	10½	6,916	4·90	338·60	350	254, 267
				Gipsy Queen of Sparrovale ..	Jr. 3 yrs.	9096	1.12.24	273	9½	4,680	4·71	220·29	250	
				Mabel of Sparrovale ..	Sr. 4 yrs.	7315	27.12.24	273	14½	6,570	4·22	277·56	325	256, 258
Gibson Bros., Trafalgar	1	1	Jersey ..	Annie Laurie of Leathorne ..	Jr. 2 yrs.	16270	11.12.24	273	15	5,346	5·65	302·31	200	
Misses Gilbert and Burns, Euroa	1	Nil	Jersey ..	Lassie 3rd of Ilford ..	Jr. 2 yrs.	14155	23.12.24	273	14	4,669	4·25	198·44	200	
R. Goodman, Kilmany South	3	2	Ayrshire	Cashmere's Queen of Roseneath	Sr. 3 yrs.	7329	28.9.24	257	4	6,487	3·95	256·13	275	155, 268
				Starlight of Roseneath ..	Jr. 2 yrs.	13516	26.10.24	273	12	6,013	4·15	249·42	200	
				Nightingale 2nd of Raith ..	Mature	9760	6·12·24	273	16	8,245	4·35	358·31	350	231, 275, 258, 153, 427
A. W. Gorman, Alexandra	1	1	Ayrshire	Maisie of Catheart	Jr. 2 yrs.	11079	28.9.24	273	12½	5,812	4·36	254·41	200	
E. Hall, Tongala East	1	1	Jersey ..	Queenie of Comely Banks ..	Jr. 3 yrs.	15497	7·10·24	273	14	4,957	5·11	253·51	250	
J. E. Handbury and Sons, Toora	1	1	Jersey ..	Lassie Fowler 7th of Melrose..	Mature	7542	10.10.24	273	20	8,820	5·63	496·60	350	339, 368, 486, 472

† Withdrawn before completion of term.

STANDARD HERD TEST—*continued.*

Owner.	No. completed Test.	No. Certificated.	Breed.	Name of Cow.	Age Standard.	Herd Book No.	Date of Calving.	Days in Test.	Milk last Day of Test.	Milk	Average Test.	Butter Fat.	Standard required.	Previous Yields of Butter Fat in lbs.
									lb.	lb.		lb.	lb.	
F. Harrison, Frankston	1	1	Jersey ..	Francie of Somerville ..	Sr. 2 yrs.	15501	5.10.24	273	10	4,080	6·78	276·46	225	
T. Harvey, Boisdale	5	4	Jersey ..	Empress of Jerseyholm ..	Mature	9393	11.10.24	273	5½	10,449	5·71	596·45	350	400, 524, 527
				Lady Marge 3rd of Jerseyholm	Jr. 2 yrs.	13357	25.11.24	273	11	4,356	6·56	285·97	200	
				Sparkle 2nd of Jerseyholm ..	Mature	5920	3.12.24	273	10	5,328	5·63	300·24	350	304, 415, 414, 395, 426
				Empress 3rd of Jerseyholm ..	Jr. 3 yrs.	10255	16.12.24	273	15½	6,799	5·67	390·88	250	396
				Lady Marge 2nd of Jerseyholm	Sr. 4 yrs.	9395	20.12.24	273	18	7,423	5·62	417·03	325	405, 423
W. Henderson (Home Farm), Grasmere	9	5	Ayrshire	Bunty 2nd of Carracoorte ..	Mature	6419	29.9.24	240	4	8,595	4·24	363·90	350	250, 241, 304
				Brownie 5th of Carracoorte ..	Jr. 4 yrs.	9326	4.10.24	245	4	5,655	4·69	265·08	300	169, 285
				Blanche of Carracoorte ..	Jr. 3 yrs.	9323	4.10.24	273	4	6,705	4·30	288·52	250	271
				Iris 2nd of Carracoorte ..	Mature	9384	4.10.24	273	18	10,929	4·06	444·21	350	220, 305, 285, 221, 411
				Pearl of Carracoorte	Mature	3998	11.10.24	212	4	6,225	4·17	*259·37*	350	182, 251, 215, 269
				Coral 4th of Carracoorte ..	Jr. 3 yrs.	9337	12.10.24	247	4	5,772	4·83	278·68	250	242
				Bellona's Queenie of Carracoorte	Jr. 4 yrs.	9312	13.10.24	212	4	4,770	4·77	227·66	300	
				Peony of Carracoorte ..	Jr. 3 yrs.	9427	19.10.24	249	4	5,814	4·09	238·01	250	233
				Beauty 6th of Carracoorte ..	Jr. 3 yrs.	9310	23.10.24	212	4	5,460	4·87	265·59	250	217
W. Henderson (Share Farm), Grasmere	10	Nil	Ayrshire	Helena 2nd of Carracoorte ..	Jr. 4 yrs.	9382	27·9·24	249	4	5,159	4·02	207·22	300	117, 198
				Ada 4th of Carracoorte ..	Jr. 3 yrs.	9306	28.9.24	211	4	4,470	4·30	198·70	250	213
				Brownie 7th of Carracoorte ..	Jr. 3 yrs.	9328	4.10.24	241	4	4,680	4·25	192·14	250	218
				Rosebloom 7th of Carracoorte	Jr. 4 yrs.	9438	4.10.24	273	4½	5,895	4·05	238·76	300	171, 260
				Coral 6th of Carracoorte ..	Sr. 2 yrs.	9339	11.10.24	273	6	4,516	4·04	182·51	225	234
				Rosebloom 6th of Carracoorte	Jr. 4 yrs.	9437	30.10.24	181	4	4,035	4·03	162·69	300	99, 168
				Dahlia 3rd of Carracoorte ..	Jr. 4 yrs.	9343	15.11.24	199	4	3,321	4·23	140·55	300	237
				Betsy 8th of Carracoorte ..	Mature	9318	18.11.24	213	4	3,735	4·14	154·48	350	162, 118, 188
				Coral of Carracoorte ..	Mature	9334	30.11.24	273	8½	3,880	4·21	163·54	350	180, 173, 208, 258
				Thelma 2nd of Carracoorte ..	Mature	4003	1.12.24	257	4	4,863	3·85	187·15	350	186, 127, 148, 308
R. J. Henry, Euroa	3	2	Jersey ..	Brunette of Maylands ..	Jr. 2 yrs.	13731	1.10.24	220	4	2,971	6·00	178·15	200	
				Bonnie 3rd of Ilford ..	Jr. 2 yrs.	13730	24.11.24	273	16	6,109	4·86	296·84	200	
				Bingle of Ilford	Mature	9452	6.12.24	273	10	5,595	6·26	350·51	350	368

STANDARD HERD TEST—*continued.*

Owner.	No. completed Test.	No. Certificated.	Breed.	Name of Cow.	Age Standard.	Herd Book No.	Date of Calving.	Days in Test.	Milk last Day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Previous Yields of Butter Fat in lbs.
									lb.	lb.		lb.	lb.	
R. O. Hogg, Colac West	1	Nil	Jersey ..	Trixie of Colac	Mature	4914	5.12.24	273	11	4,354	5·44	237·40	350	183, 304, 301, 322, 271, 133
J. A. Huffer, Gormandale	2	2	Jersey ..	Rosebud 2nd of Paradise ..	Jr. 2 yrs.	13798	1.11.24	273	14	7,101	5·62	399·01	200	
				Rosebud 2nd of Brookfield ..	Sr. 4 yrs.	9617	7.11.24	273	13	7,699	4·92	378·53	325	348
J. Huffer, Traralgon South	1	1	Jersey ..	Nancy Belle of Wattle Bank..	Jr. 2 yrs. Sr. 3 yrs.	15524	27.9.24	273	9½	4,963	4·53	224·69	200	
W. H. Hurry, Koonwarra	2	2	Jersey ..	Carrie 2nd of Queen's Vale ..	Jr. 2 yrs.	16285	14.10.24	273	17½	5,274	6·50	342·96*	200	
				Dame of Bellaire	Jr. 2 yrs.	16286	26.10.24	273	19½	5,790	5·37	310·83*	200	
J. Hutchinson and Sons, Somerville	1	1	Jersey ..	Court Beauty of Somerville ..	Jr. 2 yrs.	14157	13.11.24	273	17	5,544	5·03	278·73	200	
A. W. Jones and Son, Whittington	2	2	Jersey ..	Jenny Lind 15th of Melrose ..	Mature	9884	19.11.24	273	16½	6,456	5·89	380·04	350	314, 351
				Jubiland 3rd of St. Albans ..	Jr. 2 yrs.	16290	8.12.24	273	24½	7,216	4·77	344·56	200	
	14	14	Friesian	St. Albans Lady	Mature	360	30.9.24	273	23	9,610	3·65	351·20	350	279, 328, 378, 328, 348
				Nellie of Craigneil	Mature	1026	4.10.24	273	24	11,296	3·39	382·76	350	230, 314, 390, 372
				St. Albans Rose Mercedes ..	Jr. 3 yrs.	1681	4.10.24	273	36½	11,010	3·75	412·38	250	386
				St. Albans Daffodil Mercena	Jr. 4 yrs.	651	4.10.24	273	28	10,882	3·54	385·55	300	318, 325
				Westmere Ponteac Gem 2nd	Jr. 4 yrs.	1436	8.10.24	273	24½	11,253	3·43	386·19	300	316, 379
				Springfield Nesta	Jr. 4 yrs.	1392	21.10.24	273	28	11,479	3·25	372·78	300	373, 319
				Ina of Craigneil	Mature	1025	29.10.24	273	32	9,751	3·71	361·97	350	81, 377, 370
				Beryl of Craigneil	Mature	1034	13.11.24	273	27½	11,121	3·44	382·83	350	294, 359, 367
				St. Albans Princess May ..	Jr. 2 yrs.	Vol. 6	15.11.24	273	30	9,261	3·45	319·91	200	
				St. Albans Queen of Geelong	Jr. 3 yrs.	1679	21.11.24	273	31	8,871	3·47	307·57	250	280
				St. Albans Mercedes Lady ..	Jr. 2 yrs.	C.R.	22.11.24	273	35½	9,004	3·61	324·82	200	
				St. Albans Longbeach Netherland Princess	Jr. 2 yrs.	1672	30.11.24	273	38	9393	3·53	331·19	200	
				Daffodil Mercena	Mature	1030	15.12.24	273	43	12,325	3·49	429·67	350	326, 484, 392, 356
				St. Albans Netherland Princess	Jr. 4 yrs.	648	26.12.24	273	38½	11,764	3·41	401·30	300	360, 479

* Calved at eighteen months. † Calved at sixteen months.

Standard Herd Test—*continued.*

Owner.	No. completed Test.	No. Certificated.	Breed.	Name of Cow.	Age Standard.	Herd Book No.	Date of Calving.	Days in Test.	Milk Last Day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Previous Yields of Butter Fat in lbs.
									lb.	lb.		lb.	lb.	
J. F. Keating, Darnum	2	Nil	Red Poll	Thornhill Daisy Clare ..	Jr. 2 yrs.	13190	24.10.24	268*	6	4,263	4·32	184·08	200	
				Thornhill Sheila	Jr. 3 yrs.	775A	19.11.24	273	9	5,052	3·90	196·84	250	209
G. Kent, Archie's Creek	5	3	Ayrshire	Marjory of Woolamai Park ..	Jr. 4 yrs.	7437	28.9.24	273	5½	6,150	4·27	262·84	300	180, 197
				Merle of Woolamai Park ..	Jr. 2 yrs.	11155	4.10.24	273	10	4,926	4·89	241·00	200	
				Peggy of Woolamai Park ..	Mature	5275	9.10.24	273	11	7,066	4·34	306·70	350	224, 244, 267, 325
				Princess of Woolamai Park ..	Mature	6478	12.12.24	273	16½	8,335	4·34	361·81	350	253
				Peeress of Woolamai Park ..	Jr. 2 yrs.	11156	25.12.24	273	13½	5,190	4·57	237·41	200	
P. H. Lawrence, Tarrawarra	4	4	Jersey ..	Morocco's Linda of Rainga ..	Sr. 2 yrs.	11560	14.10.24	273	11½	5,165	5·00	257·90	225	266
				Lily Langtry of Rainga ..	Sr. 2 yrs.	12955	15.11.24	273	8	4,527	6·28	284·42	225	285
				Charming Beauty of Blackwood Valley	Jr. 2 yrs.	14165	15.11.24	273	11½	4,218	5·26	220·94	200	
				Choirmaster's Queen of Rainga	Sr. 2 yrs.	12954	24.11.24	273	8½	3,913	5·84	228·45	225	242
Lehman Bros., Horsham	1	1	Jersey ..	Venus of Concordia	Jr. 3 yrs.	11562	9.10.24	273	11	6,747	5·22	351·99	250	
Mrs. E. M. Lennie, Tongala	3	Nil	Jersey ..	Tulip 5th of Bonshaw ..	Mature	7104	7.10.24	273	14	6,666	4·33	288·61	350	237, 235, 366, 344, 253
				Primrose 2nd of Bonshaw ..	Mature	7102	18.10.24	273	10½	4,390	5·30	232·75	350	346, 310, 277, 275, 359
				Show Girl of Tarnpirr ..	Mature	10311	20.10.24	273	12	6,241	5·38	335·66	350	346, 393, 328
Agricultural High School, Leongatha	2	2	Jersey ..	Startle of Woorayl	Jr. 2 yrs.	14938	18.10.24	273	15½	4,996	5·81	290·25	200	
				Cream Star of Woorayl ..	Jr. 2 yrs.	14936	26.10.24	273	11	4,641	6·07	281·87	209	
C. D. Lloyd, Narre Warren	6	5	Jersey ..	Fern's Duchess of Glen Iris ..	Jr. 3 yrs.	12963	4.10.24	273	14½	5,806	5·38	312·49	250	227
				Werribee Fancy's Clementine 3rd	Jr. 3 yrs.	13561	18.10.24	273	19	6,660	6·17	410·91	250	
				Naldera of Woodside ..	Sr. 3 yrs.	14170	21.10.24	273	16	6,951	4·90	340·37	275	293
				Werribee Starbright 9th ..	Mature	6542	22.10.24	273	23	11,221	5·28	592·18	350	582, 511, 596, 495
				Rye Cake of Glen Iris ..	Mature	7111	1.11.24	273	12½	5,347	5·42	290·01	350	229, 246, 241, 272
				Golden Fern of Glen Iris ..	Mature	6058	14.11.24	273	14½	6,613	5·52	364·80	350	243, 332, 399, 361, 362, 418

* Withdrawn before completion of term.

Standard Herd Test—*continued.*

Owner.	No. completed Test.	No. Certificated.	Breed.	Name of Cow.	Age Standard.	Herd Book No.	Date of Calving.	Days in Test.	Milk last Day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Previous Yields of Butter Fat in lbs.
									lb.	lb.		lb.	lb.	
J. G. Lobb, Cardinia	7	1	Ayrshire	Beauty 3rd of Quarry Hills ..	Sr. 3 yrs.	10670	26.10.24	273	8	6,927	3·86	267·46	275	241
				Jessie 3rd of Rythdale Park	Mature	8410	31.10.24	230	4	7,398	3·96	293·06	350	292
				Sunrise of Rythdale Park ..	Jr. 4 yrs.	8122	3.11.24	273	7	6,231	4·52	281·41	300	218
				Maisie 3rd of Burnside ..	Jr. 3 yrs.	9787	11.11.24	249	4	5,979	4·24	253·49	250	236
				Daphne of Quarry Hills ..	Sr. 4 yrs.	9786	17.11.24	256	4	6,790	4·52	306·54	325	253, 238
				Cloverleaf of Springfield ..	Sr. 2 yrs.	8869	18.11.24	240	4	5,325	4·14	220·54	225	
				Gentle of Springfield ..	Jr. 3 yrs.	8871	23.11.24	233	4	4,115	4·53	186·39	250	
Longerenong Agricultural College, Dooen	6	1	Ayrshire	Mercy of Oakbank ..	Mature	5350	4.10.24	240	4	7,725	3·93	303·40	350	297
				Gloria of Longerenong ..	Sr. 4 yrs.	9790	15.10.24	273	4	6,528	4·41	287·59	325	258
				Starette of Fernhill ..	Mature	5949	23.10.24	273	12	7,014	4·01	281·02	350	256
				Virginia of Longerenong ..	Mature	9793	9.11.24	273	11	7,929	4·28	339·09	350	277
				Dolichos of Longerenong ..	Sr. 4 yrs.	9789	16.11.24	273	6	7,099	4·57	324·12	325	244
				Primrose of Longerenong ..	Jr. 2 yrs.	12437	16.11.24	273	17½	5,994	4·42	265·70	200	
H. Luxton, Whittlesea	1	1	..	Lady Starbright of Brucevale	Jr. 4 yrs.	12882	13.10.24	273	14½	7,230	4·89	353·49	300	267, 335
C. Gordon Lyon, Heidelberg	11	11	Jersey ..	Silvermine 23rd of Banyule ..	Jr. 4 yrs.	9566	28.9.24	273	26	11,365	4·45	505·70	300	376, 519
				Silvermine 18th of Banyule ..	Mature	6080	19.10.24	273	28½	9,975	5·27	525·54	350	358, 432, 449, 462, 606
				Ettie 5th of Banyule ..	Mature	5204	10.11.24	273	26½	8,728	5·05	440·38	350	246, 406, 360, 349, 384
				Tiddlewinks of Banyule ..	Jr. 4 yrs.	11613	15.11.24	273	20	7,366	5·99	440·95	300	
				Crescendo of Banyule ..	Jr. 2 yrs.	14181	23·11·24	273	17	5,814	5·66	329·31	200	
				Silvermine 28th of Banyule ..	Jr. 2 yrs.	11604	29.11.24	273	20	6,543	5·32	348·41	200	
				Molly 8th of Banyule ..	Mature	9499	6.12.24	273	32	10,857	5·87	637·11	350	304, 453, 538
				Silvermine 27th of Banyule ..	Jr. 2 yrs.	11603	9.12.24	273	11½	3,530	6·13	216·46	200	
				Sweet Bell of Rochdale ..	Jr. 4 yrs.	9794	15.12.24	273	22	6,456	5·87	379·00	300	
				Hawthorn 10th of Banyule ..	Jr. 2 yrs.	11584	17.12.24	273	20½	5,835	5·66	330·37	200	
				Velveteen 5th of Banyule ..	Jr. 4 yrs.	11614	22.12.24	273	31	9,805	4·80	470·15	300	273, 491
M. Lyons, Bamawm	1	Nil	Jersey ..	Kyora Starbright	Jr. 2 yrs.	16308	18.11.24	273	14	3,664	4·46	163·57	200	

STANDARD HERD TEST—*continued.*

Owner.	No. completed Test.	No. Certificated.	Breed.	Name of Cow.	Age Standard.	Herd Book No.	Date of Calving.	Days in Test.	Milk last Day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Previous Yields of Butter Fat in lbs.
									lb.	lb.		lb.	lb.	
J. McDougall, Byaduk	2	2	Jersey ..	Peggy of Parkview ..	Sr. 2 yrs.	15014	30.10.24	273	19½	7,876	4·91	386·69	225	
				Laurel of Parkview ..	Jr. 2 yrs.	15544	1.11.24	273	16	6,309	5·60	353·49	200	
J. T. McGalliard, Gellibrand	5	1	Friesian	Springfield Lass 2nd ..	Jr. 4 yrs.	1066	15.10.24	273	10½	7,896	3·92	309·76	300	
				Dominion Grace de Kol ..	Mature	377	30.10.24	273	21	10,899	2·91	317·41	350	286, 300, 248
				Halecote Grace Patch ..	Jr. 3 yrs.	1574	5·11·24	248	4	6,252	3·47	217·04	250	
				Yarra Brae Oakleaf ..	Jr. 3 yrs.	1720	19.11.24	238	4	6,304	3·70	233·39	250	
				Tarrawarra No. 57 ..	Mature	1044	10.12.24	254	11½	7,721	3·49	269·19	350	
K. McGarvie, Pomborneit	1	1	Jersey ..	Queenie 6th of Melksham Park	Jr. 3 yrs.	11768	31·10·24	240	4	5,325	5·51	293·55	250	
H. V. McKay, Sunbury	3	1	Ayrshire	Pearline 2nd of Retreat ..	Jr. 4 yrs.	7538	30.9.24	238	4	5,442	4·10	223·04	300	200, 256
				Verbena of Ayrbrae ..	Jr. 3 yrs.	9978	7.11.24	273	18	6,315	4·54	286·71	250	232
				Virtue of Ayrbrae	Mature	7365	16.12.24	240	4	5,625	4·62	259·89	350	188, 231, 225
P. J. Maloney, Tongala	2	2	Jersey ..	Marie 2nd of Belgonia ..	Sr. 2 yrs.	12995	8.10.24	273	10½	8,253	5·22	430·61	225	311
				Wattle of Springhurst ..	Mature	5408	18.10.24	273	19	10,031	4·32	433·05	350	287, 320, 292, 380, 476, 582, 552
T. Mosley, Dalyston	1	1	Jersey ..	Lily of Rosemont	Jr. 4 yrs.	11926	7.10.24	273	10	7,075	5·99	423·72	300	313, 430
C. Moody, Warragul	1	1	Jersey ..	Chloe 2nd of Clarendon Eyre	Sr. 3 yrs.	11650	11.12.24	273	23	8,049	6·04	486·20	275	252
W. Muhlebach	2	1	Ayrshire	Letty of Cathcart	Jr. 2 yrs.	11076	28.9.24	273	8½	5,574	4·34	241·82	200	
				Pansy's Queen of Retreat ..	Jr. 3 yrs.	9910	13.11.24	206	4	3,312	4·24	140·37	250	209

STANDARD HERD TEST—*continued.*

Owner.	No. completed Test.	No. Certificated.	Breed.	Name of Cow.	Age Standard.	Herd Book No.	Date of Calving.	Days in Test.	Milk last Day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Previous Yields of Butter Fat in lbs.
									lb.	lb.		lb.	lb	
T. M. Noble, Maffra	1	1	Jersey ..	Music of Brucevale ..	Jr. 2 yrs.	16324	12.11.24	273	17	5,805	5·83	338·23	200	
Mrs. L. Orchard, Graham Vale	7	3	Jersey ..	Violet of Jersey Vale ..	Jr. 2 yrs.	C.R.	6.10.24	273	10	2,835	5·99	169·80	200	
				Daffodil of Jersey Vale ..	Mature	7220	16.10.24	273	5	4,431	5·43	240·79	350	229, 251. 251, 284
				Tulip of Jersey Vale ..	Mature	10360	21.10.24	273	4½	6,081	4·86	295·24	350	260, 275, 301
				Lily of Jersey Vale ..	Mature	10356	28.10.24	262	5	5,107	4·86	247·95	350	178, 137 223, 279
				Iris of Jersey Vale ..	Jr. 2 yrs.	15580	17.11.24	273	9½	4,686	5·23	244·96	200	
				Doreen of Jersey Vale ..	Jr. 2 yrs.	13763	26.11.24	273	7	3,985	5·25	209·18	200	136
				Buttercup of Jersey Vale ..	Sr. 3 yrs.	11657	20.12.24	273	15½	6,645	5·29	351·64	275	187, 323
D. Peter, Heidelberg	7	5	Jersey ..	Dunalister Mannikin's Perree's Attractive 3rd	Jr. 2 yrs.	16326	10.10.24	273	8	3,909	5·16	201·59	200	
				Dunalister Perree's Noble Czarina	Jr. 2 yrs.	16328	7·11·24	273	14½	5,548	5·34	296·05	200	
				Dunalister Perree's Jersey Maid 2nd	Jr. 2 yrs.	13766	8.11.24	273	11	4,456	6·03	268·48	200	
				Lady Elector 10th of Melrose	Jr. 4 yrs.	11779	10.11.24	263	4	4,637	5·37	249·01	300	247
				Dunalister Mannikin's Perree's Attractive 4th	Jr. 2 yrs.	16327	27.11.24	273	11	4,488	6·03	270·58	200	
				Dunalister Mannikin's Perree's Capture 3rd	Jr. 2 yrs.	16985	20.12.24	273	12	4,311	5·90	254·35	200	
				Dunalister Mannikin's Attraction	Jr. 4 yrs.	10381	30.12.24	273	13	5,019	5·34	268·07	300	277
J. Pettit, Geelong	4	1	Ayrshire	Vida of Glen Avon	Jr. 3 yrs.	8387	13.10.24	241	4	5,190	4·01	208·25	250	
				Fanciful of Sunnyside ..	Mature	11316	25.11.24	273	7	5,428	4·37	237·07	350	
				Melba of Blinkbrae ..	Jr. 2 yrs.	12669	5.12.24	273	21	5,736	4·48	257·24	200	
J. Phillips, Murraydale	2	1	Jersey ..	Carnation of Ferntree Vale ..	Sr. 4 yrs.	9637	20.11.24	273	14	6,034	5·20	314·12	325	274, 341, 269
				Vanilla 18th of Melrose ..	Jr. 3 yrs.	13424	3.12.24	273	19	6,523	6·30	400·70	250	328
J. Plattfuss, Tongala	1	1	Friesian	Daffodil of Greenvale ..	Jr. 3 yrs.	App. 4	8.11.24	273	27	9,426	3·60	339·59	250	239

STANDARD HERD TEST—*continued.*

Owner.	Number Completed.	Number Certificated.	Breed.	Name of Cow.	Age Standard.	Herd Book No.	Date of Calving.	Days in Test.	Milk last Day of Test.	Milk.	Average Test.	Butter Fat.	Standard Required.	Previous Yields of Butter Fat in lbs.
									lb.	lb.		lb.	lb.	
R. Purnell, Moriac..	3	1	Jersey	Purity 5th of Melrose ..	Mature	7548	25.10.25	273	7½	4,882	5·66	276·24	350	177, 143, 155
				Lady Grey 31st of St. Albans	Jr. 2 yrs.	C.R.	13.11.24	273	16½	5,106	5·72	292·05	200	
				Woodruff Mystic Maid ..	Jr. 4 yrs.	10517	1.12.24	266	4	2,646	6·55	173·24	300	210, 227
Miss H. E. Raleigh, Pakenham Upper	2	1	Jersey ..	Cora of Elouera	Jr. 3 yrs.	12234	6·10·24	273	9½	6,022	5·54	333·63	250	227
				Daffodil of Goronga Farm ..	Sr. 4 yrs.	10436	10.10.24	273	11	6,290	5·09	320·13	325	
R. Ralston, Moglonemby	7	1	Ayrshire	Peggy of Ben Kell	Jr. 2 yrs.	11349	30.9.24	273	18½	5,650	5·25	296·59	200	
				Pansy of Ben Kell	Jr. 3 yrs.	10184	2.10.24	263	4	5,569	4·20	233·63	250	253
				Fashion of Ben Kell ..	Jr. 2 yrs.	11345	10.10.24	259	4	4,590	4·07	186·87	200	
				Brunette of Willow Vale ..	Mature	6735	24.10.24	241	4	6,975	4·06	283·08	350	208, 246, 291
				Picture of Ben Kell ..	Jr. 3 yrs.	10187	27.10.24	241	4	5,415	3·98	215·45	250	263
				Winnie of Ben Kell.. ..	Mature	6744	31.10.24	235	4	7,360	4·25	312·97	350	259, 379, 315
				Pardon of Ben Kell ..	Mature	5753	15.11.24	273	5½	7,862	3·99	313·82	350	231, 336, 285, 299
J. D. Read, Springhurst	1	Nil	Jersey ..	Belladonna of Springhurst ..	Mature	5389	17.11.24	273	21	6,469	4·77	308·74	350	222, 253, 243, 399, 306 357
Miss B. B. Reid, Bundoora	2	..	Jersey ..	Jubilee Wattle	Mature	10460	29.9.24	273	4	6,270	5·09	319·66	350	229, 332, 445
				Jubilee Aster	Jr. 3 yrs.	13768	22.12.24	257	4	3,765	6·11	229·87	250	226
W. S. Richardson, Riddell	1	Nil	Jersey ..	Golden Pariel 2nd of Boorene	Mature	11227	2.12.24	273	9½	4,655	6·33	294·69	350	
Miss S. L. Robinson, East Kew	2	1	Jersey ..	Kyora Three Star	Jr. 3 yrs.	16744	12.10.24	273	12	6,003	5·24	314·52	250	248
				Jessie 16th of Melrose ..	Mature	5547	11.11.24	273	5½	6,084	5·46	332·30	350	288, 329, 316, 349
W. P. Rogen, Tatura	1	1	Jersey ..	Jess of Clarendon Eyre ..	Jr. 4 yrs.	9576	31.10.24	273	19	6,759	4·85	327·82	300	320

Standard Herd Test—*continued.*

Owner.	No. completed Test.	No. Certificated.	Breed.	Name of Cow.	Age Standard.	Herd Book No.	Date of Calving.	Days in Test.	Milk last Day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Previous Yields of Butter Fat in lbs.
									lb.	lb.		lb.	lbs.	
G. Rowe, Kardella	2	Nil	Jersey ..	Pattie of Hill Crest ..	Mature	9688	27.9.24	273	13½	6,664	4·71	313·84	350	207, 204, 274
				Joy of Hill Crest	Mature	10468	4.12.24	273	..	5,137	5·14	263·81	350	205, 222, 207
L. L. Russell, Tongala	2	Nil	Friesian	Tongala Queenie	Mature	App. 4	13.10.24	273	4	5,367	5·56	298·30	350	406, 333
				Dimple of Craigneil	Mature	1070	9.12.24	273	19	8,961	3·18	285·40	350	311, 356, 293
W. A. Sandles, Mt. Best, near Toora	2	2	Jersey ..	Lady May of Ferndale ..	Mature	9697	24.10.24	273	17	7,168	5·33	381·91	350	355
				Rose of Franklin Park ..	Jr. 3 yrs.	13015	25.12.24	273	12	4,309	6·12	263·70	250	228
A. H. Schier, Kernot	8	5	Ayrshire	Adella's Pet of Inverleigh ..	Mature	5853	10.10.24	273	36	13,150	3·63	477·08	350	250, 242, 326, 383
				Scotswood Reason ..	Jr. 3 yrs.	10316	13.10.24	256	4	3,578	3·60	128·96	250	189
				Myrtle 2nd of Pine Grove ..	Mature	4637	14.10.24	273	8	9,079	4·01	364·13	350	282, 264, 298, 308, 335
				Milkmaid of Inverleigh ..	Mature	5859	17.10.24	263	4	5,771	3·64	210·35	350	166, 222, 218, 174
				Primrose 2nd of Pine Grove ..	Mature	4640	17.11.24	273	8½	6,661	3·86	256·25	350	246, 216, 267, 195, 223
				Scotswood Fuchsia ..	Jr. 2 yrs.	14146	20.11.24	273	4	3,978	5·27	209·84	200	
				Scotswood Boronia ..	Jr. 2 yrs.	..	20.12.24	273	8½	3,957	5·10	201·93	200	
				Scotswood Madeira ..	Jr. 2 yrs.	11368	21.12.24	273	16	5,413	4·38	236·99	200	
A. Schliphalius, Kilmany South	1	1	Jersey ..	Blossom 6th of Melrose ..	Jr. 3 yrs.	13420	31.10.24	273	11	4,869	6·12	297·87	250	333
Simpson and Charlton, Lower Korntree Gully	4	1	Jersey ..	Rose of Clarendon Eyre ..	Mature	9583	1.10.24	273	16½	7,783	5·60	435·83	350	391
				Glenflorrie	Jr. 2 yrs.	12934	14.11.24	273	13½	6,183	5·40	334·07	200	
				Leonie of Clarendon Eyre ..	Mature	9578	24.11.24	273	21	8,296	5·04	417·71	350	353
				Cinnamon of Clover Field ..	Sr. 2 yrs.	13741	20.12.24	223	*17½	4,518	4·95	223·58	225	
Smith and Sons, Woodend	1	1	Friesian	Halecote Opera Girl ..	Jr. 2 yrs.	1281	7.11.24	273	21½	12,484	3·27	408·28	200	

* Withdrawn before completion of test.

Standard Herd Test—*continued.*

Owner.	No. completed Test.	No. Certificated.	Breed.	Name of Cow.	Age Standard.	Herd Book No.	Date of Calving.	Days in Test.	Milk last Day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Previous Yields of Butter Fat in lbs.
									lb.	lb.		lb.	lb.	
Mrs. D. Stark, Wando Vale	1	1	Jersey ..	Thora of Jersey Meadows ..	Jr. 3 yrs.	11717	23.11.24	240*	16	5,310	6·10	324·10	250	289
O. J. Syme, Macedon	4	4	Friesian	Bolobek Milkmaid	Jr. 2 yrs.	1194	8.10.24	273	8	6,027	3·49	210·32	200	
				Bainfield Topsy 13th ..	Jr. 4 yrs.	6212	18.10.24	273	30	14,455†	4·10	593·29	300	
				Bolobek Dominett	Sr. 2 yrs.	1187	1.11.24	273	13½	6,505	3·94	256·62	225	
				Bolobek Antonia ..	Jr. 2 yrs.	1183	3.12.24	273	15	7,306	3·34	243·81	200	
Telford Bros., Kyabram	3	1	Aryshire	Cora of Hyde Park ..	Mature	5997	27.9.24	267‡	8	6,755	4·32	291·66	350	226, 311, 326
				Trissie of Wethersdane ..	Mature	4172	29.9.24	273	7	7,539	4·03	303·70	350	363, 323, 353
				Daphne of Hyde Park ..	Jr. 2 yrs.	12861	21.11.24	273	26	8,346	4·27	356·38	200	
L. W. Thompson, Pakenham	1	1	Jersey ..	Garenne 4th of Warenda ..	Mature	9565	16.12.24	273	18	6,759	5·92	399·93	350	434, 429, 496
F. Trevaskis, Tongala	3	3	Jersey ..	Beauty of Ballara ..	Jr. 2 yrs.	15635	23.10.24	273	6½	4,150	5·18	215·08	200	
				Joy Bell of Ballara	Jr. 3 yrs.	11721	2.12.24	273	9½	5,265	5·30	278·83	250	248, 303
				Starbright 2nd of Brucevale..	Jr. 2 yrs.	16230	6.12.24	273	15	6,270	4·88	306·10	200	
J. F. Tuckey ..	5	..	Ayrshire	Kitten of Tregorland ..	Jr. 2 yrs.	14270	12.10.24	273	15	6,004	4·35	260·89	200	
				Kite of Tregorland ..	Jr. 2 yrs.	14268	12.10.24	273	14	5,476	4·23	231·32	200	
				Kith of Tregorland ..	Jr. 2 yrs.	14269	19.10.24	273	9½	5,508	4·91	270·40	200	
				Irene of Tregorland ..	Jr. 2 yrs.	14265	24.10.24	273	15½	6,199	4·84	299·96	200	
				Iris of Tregorland	Jr. 2 yrs.	14266	30.10.24	273	17	5,601	4·40	246·63	200	
A. Wallace, Bendigo	1	1	Ayrshire	Dewdrop of Glencooee ..	Jr. 2 yrs.	11491	25.10.24	273	13	5,706	4·03	230·11	200	

* Sold before completion of term. † Milked thrice daily. ‡ Withdrawn before completion of term.

STANDARD HERD TEST—*continued.*

Owner.	No. completed Test.	No. Certificated.	Breed.	Name of Cow.	Age Standard.	Herd Book No.	Date of Calving.	Days in Test.	Milk last Day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Previous Yields of Butter Fat in lbs.
									lb.	lb.		lb.	lb.	
Agricultural High School, Warragul	3	nil	Red Poll	Gipps Eumea	Jr. 3 yrs.	783A	21.10.24	234	4	4,984	3·98	198·20	250	164
				Pendant	Mature	556D	2.11.24	268	4	8,034	3·58	287·32	350	318, 242
				Laranaga	Mature	488C	11.11.24	240	4	6,840	3·81	260·69	350	199, 278, 224
H. L. Webb, Sunbury	5	4	Ayrshire	Lily's Queen of Holly Green	Sr. 3 yrs.	11495	9.10.24	273	13	9,117	4·26	388·18	275	252, 404
				Alice of Holly Green ..	Jr. 2 yrs.	11493	26.10.24	273	11½	6,051	4·23	256·00	200	260
				Myra of Holly Green ..	Sr. 2 yrs.	11499	11.11.24	273	7	5,436	4·49	244·29	225	259
				Nesta of Holly Green ..	Jr. 2 yrs.	11500	2.12.24	273	17½	6,294	4·40	276·76	200	
				Rose Bloom of Holly Green ..	Sr. 4 yrs.	6957	24.12.24	273	4	7,750	4·10	317·50	325	301, 288
S. Webb, Lyndhurst	1	1	Jersey ..	Jessemia 16th of Kings Vale	Sr. 2 yrs.	14117	29.11.24	273	16	4,047	5·27	260·53	225	
F. E. Wilcox, Lilydale	1	1	Jersey ..	Werribee Kinglark Bluebell ..	Jr. 4 yrs.	12243	9.10.24	273	19½	7,171	6·53	468·35	300	300, 416
W. Woodmason, Oakleigh	2	2	Jersey ..	Vanilla 11th of Melrose ..	Mature	7550	28.10.24	273	15½	6,957	5·40	375·59	350	303, 362, 369, 424, 329, 419
				Jessie 39th of Melrose ..	Jr. 2 yrs.	15652	3.11.24	273	11	4,068	5·48	222·85	200	

ORCHARD AND GARDEN NOTES.

E. E. Pescott, F.L.S., Pomologist.

The Orchard.

As a preventive against codlin moth, apple and pear trees should be sprayed with arsenate of lead whenever there is danger from the prevalence of the moth. One of the secrets of success in codlin moth spraying is the destruction of as many as possible of the insects of the first brood. Thus, if particular care is given to the early sprayings, keeping the fruit covered with spray for a month or six weeks after setting, this result is easily accomplished. Some growers prefer to gather all fruit infected by the first brood, spraying only for the second and later broods. Even if all the fruits attacked are gathered, which very rarely happens, the grower suffers from the loss of fruit, which he can ill afford, unless his crop be a heavy one.

Another feature for consideration is the fact that the presence of any arsenical spray on the foliage is responsible for the destruction of the pear and cherry slug, root-borer beetle, and all forms of leaf-eating insects.

Spraying the cherries for the slug will now be necessary. Arsenate of lead may be used, provided the fruit is not far advanced. Hellebore, and also tobacco water, are effective against this pest.

Cultivation.

All orchard soils should be kept well worked during the summer months. It is very essential that the trees should have an abundant supply of moisture during the whole of the growing season. This will mean an increased supply of fruit buds for the next season, consequently the frequent summer cultivation of the soil will be a necessity if the health and vigour of the trees are to be maintained.

Excessive transpiration is often the cause of loss of young trees and of new grafts. They are found to part with a large amount of moisture, and are not able to obtain or retain sufficient for their nourishment; they then very soon wither and die. The soil around these should always be kept well stirred; they may also be given a good straw or grass mulching, and an occasional overhead sprinkling will greatly benefit them.

The planting out of citrus trees may be continued, sheltering the tender plants from winds with hessian or breaks of scrub.

The general aims in summer cultivation should be to maintain a good loose earth mulch during the whole season, and to keep down all weeds and useless orchard growths.

Pruning.

Summer pruning may now be commenced, particularly on apple, pear, and plum trees. The removal or reduction of surplus leader growths, the shortening of unduly long laterals, and the thinning out of crowded shoots, will all tend to strengthen other parts of the tree and to increase the development of new fruit buds.

The Vegetable Garden.

Tomatoes will require much attention at this time of the year. If the plants have been well looked after, they should be making vigorous growth. It will be to advantage to tie the plants to stakes, training them to two or three main growths, and pinching out all laterals as they come.

The plants should be well watered, and occasionally a handful of bonedust or potash mixed should be forked in around the roots. Where stable manure is used, it should be used as a mulch, forking it in every three or four weeks, and making a fresh mulch.

It is now recommended that occasional doses of sulphate of potash as a manure for tomatoes will help the plants to resist the spotted wilt.

All plants of the cucumber and melon family should now be constantly supplied with ample water. Pinch out unnecessary lateral growths, and also the terminals.

The following seeds may now be sown:—French beans, cabbage and cauliflower for winter crops, parsnip, lettuce, and celery.

The side shoots of celery plants should be removed, afterwards earthing up the plants. Asparagus beds should be top-dressed, and allowed to grow without any more cutting. The vegetable beds will need frequent forking and hoeing to keep the soil sweet, and to keep down all weeds.

The Flower Garden.

Plant out dahlias this month; green plants early, and plants grown from tubers later in the month. Water well at planting, and keep well cultivated afterwards.

Rose bushes and beds may be given a good mulch with light stable manure, straw, grass, or lawn clippings. The beds should be kept rather dry, so as to allow the plants to rest before the autumn period of growth.

Sow seeds of cosmos, asters, zinnia, balsams, cockscomb, coreopsis, salpiglossis, and other late summer and autumn blooming annuals.

Cut down delphiniums that have yielded their first crop of flowers, so as to allow a succession of flowers to come.

Daffodil, hyacinth, tulip, ranunculus, anemone, and other bulbs and tubers may be taken up and stored; while gladioli corms may still be planted.

The garden must be kept well watered and cultivated, so as to tide the plants over the hot and dry season.

REMINDERS FOR JANUARY.

LIVE STOCK.

Horses.—*Stabled.*—Over-stimulating and fattening foods should be restricted. Water should be allowed at frequent intervals. Rub down on coming into stables in an overheated condition. Supply a ration of greenstuff, where possible, to all horses. *Brood mares* should be well fed on succulent food if available; otherwise,

oats and bran should be given. *Foals* may with advantage be given oats to the extent of 1 lb. for each month of age daily. Provision should be made for shade shelter for paddocked horses.

Cattle.—Provide succulent fodder and plenty of clean water and shade. Japanese millet makes good grazing when the grass is dry. There should always be a supply of silage. The silo may be filled twice a year, and so a supply of succulent fodder is always available. Provide "lick" in trough, consisting of salt 20 lb., lime 20 lb., superphosphate 5 lb., and sulphate of iron 1 lb. Limewash the cow bails, it helps to keep down flies. Provide calves, if possible, with good grass run, or lucerne hay or oats in a trough. Now that the Dairy Produce Act is in operation, it is necessary to take proper care of milk and cream, as it must be paid for according to its quality. Utensils must be kept clean and well tinned. Cream must be cooled and kept cool and delivered fresh to the factory. Write to the Department of Agriculture for "Don'ts for Dairymen."

Pigs.—Supply short bedding in well-ventilated styes. Keep styes clean and dry, and feeding troughs clean and wholesome. Sows suckling young should be well fed to enable them to produce plenty of milk. Give young pigs pollard and skim milk in separate trough as soon as they will take it, and keep them fattening from the start to get them off as early as possible. Give a tablespoonful of bone meal or superphosphate per 100 lbs. live weight in food daily. If pigs are lousy, dress with kerosene emulsion or sulphur and lard, rubbing well into crevices of skin, and disinfect styes. Plenty of water should be available for them to wallow in in hot weather.

The automatic feeder described and illustrated in Bulletin 16 is proving a great success.

Sheep.—The various breeds of ewes come in season approximately as follows:—Merinoes and comebacks, November and December; crossbreds, January and February; pure British breeds, February and March. These dates will vary with the locality, i.e., in the north of Victoria ewes generally come in season from one month to six weeks earlier than in the south-western districts or in South Gippsland. Be sure that there are ample rams, that is to say, from 2 to 3 per cent. If possible, use 2, 4, or 6-tooth rams. If older rams are used, it is preferable to join them with young ewes, and rams should be in proportion of 3 per cent. Always select rams with width and substance, true to breed, with type and wool qualities pronounced. (Do not use crossbred rams as they will not produce good even lambs.) If an ample number of rams be available, use the best first and the seconds afterwards. The mating period should not exceed eight weeks. It is well to have fresh rams after the first five weeks. The ewes should be in good condition at mating time, but not too fat. To start the rams working, yard the ewes with the rams for a few nights at the outset of joining. The ewes will come into season much quicker if flushed with good food just before joining the rams.

Breed from only good-fleeced, roomy and sound-mouthed ewes. Keep in view wool-production as well as a good-shaped carcass. Lamb, mutton, and wool will be amongst the foremost commodities in Australia for some time to come, and with the prices ruling for these products at present, every sheep-owner should make determined efforts to improve his flock. Two-tooth ewes, if well-grown, may be bred from; this particularly applies to crossbreds, and pure English sheep; also to the two-tooth ewes of a Merino flock if they are large enough, but they must be well treated throughout.

The second dipping of tick and louse infected sheep should be undertaken during January, but care should be taken not to dip during very hot weather.

Where the grass is dry and hard, all ewes that are hollow and "off their feed" should be given a purgative drench or pill. If weaners are scouring, worm-pills should be given. Grown sheep showing unhealthy discharge should be given a worm drench, consisting of—

1 oz. white arsenic.
2 oz. carbonate of soda.

The drench should be prepared as follows:—Boil both the arsenic and the soda in one quart of water steadily for two minutes; then skim off scum and add

sufficient water to make the liquid up to three gallons. Two ounces of the liquid should be allowed for each full-grown sheep; for weaners, 1½ oz. Keep sheep yarded without food for at least 24 hours before drenching, and repeat at intervals of eight days if trouble is persistent. Three doses may be given without material harm.

Attend to health of sheep generally. Do not overstock. Ensure an ample fresh-water supply. Healthy well-fed sheep rarely get fly-blown.

CULTIVATION.

Farm.—Get all crops harvested and stacked as soon as possible. Horse-hoe maize, potatoes and other summer crops. See to insurance of stacks of grain and hay.

Vineyard.—Summer bud or *Yema* grafting may be practised in January, though February is the usual month. (See Bulletin No. 35, obtainable on application.) This is the slackest month in un-irrigated vineyards—all ordinary work should be completed before Christmas. It is only exceptional operations, such as cultivating after rain, sulphuring in case of odium, or spraying for downy mildew, that must be carried out. Should heavy rain fall it will be necessary to repeat spraying in order to insure adequate protection The final spraying, to protect foliage, and thus permit fruit to ripen, should be applied in January; the exact date will depend on the weather. In irrigated vineyards the application of water, and the cultivation it necessitates, require attention. Make it a rule to spray immediately *before* watering.

Cellar.—Fill up regularly and keep cellar as cool as possible. Towards end of month commence to make preparations for the coming vintage.

BEE-KEEPING.

January being usually the hottest month of the year, combs may melt down on very hot days in hives made out of cases unless they are in some way shaded during the hottest part of the day. If bags are used, they should be removed again as soon as the hot weather is over, because they afford hiding places for bee moths, spiders, and other enemies of bees.

With factory-made or other hives, the walls, cover, and floor of which are of timber not less than ⅞ inch in thickness, there is no need to provide artificial shade, provided the entrance is of sufficient width and the hive of ample capacity to accommodate the bees. The ordinary entrance, which is 5-16 inch deep and the width of the hive, is generally sufficient. It may, however, be enlarged by raising the hive another ¼ inch or so in front should there be much clustering out of the bees.

Top ventilation should not be given; it is not necessary, and the bees dislike it. Bees control the temperature inside the hive by fanning at the entrance and by moistening the combs with water.

During this and the next month bees generally supersede queens in their third year, or which are failing during the second. Queens are sometimes still quite prolific, but by some means the bees know that they would not live through the coming winter, and that it is necessary to raise a successor while drones are still flying, so that the young queen may not remain unfertilized. The queen-cells, which bees construct when superseding, are few—one or two, rarely more. They are generally built on the face of one of the outer combs, often one containing no other brood—not on the edge of a brood comb, as in the case of swarm cells.

Supersedure queen cells must not be mistaken for swarm cells and destroyed, otherwise the hive may eventually become queenless.

All colonies should be examined to see that each has a laying queen. It sometimes happens that the virgin queen of a swarmed stock is lost on her mating flight, and as there is then no young brood in the hive from which to raise another queen, the colony becomes hopelessly queenless. Therefore, whenever neither young brood nor eggs are seen in a hive, a comb of young brood or eggs from some other colony should be given to the bees. If, on examination a few days later, queen-cells have not been raised, then there is a virgin queen in the hive which may be expected to commence laying within a fortnight at the outside.

A High-Grade, Home-Grown
Supplemental Feed
for any kind of Stock

SOY OR SOJA BEANS

SPLENDID FODDER FOR STOCK
EXCELLENT FOR HAY
OF GREAT VALUE FOR ITS
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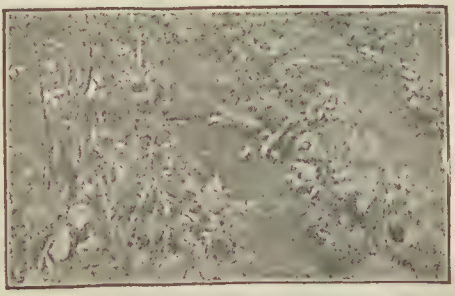
The Soy Bean plant is as high in feeding value as Lucerne, and may be used in the form of hay, pasture, silage, or soilage, or as a protein concentrate. Soy Beans grown alone for seed or hay solve the problem of preparation of Winter wheat ground, since they leave the soil in excellent condition for wheat with no preparation whatever. For hay or fertilizer, sow 60 to 90 lb. per acre; or, if sown between rows of maize, 60 lb. per acre. **1/-** lb.; **50/-** bushel (60 lb.).

COW PEAS

Excellent Summer Fodder

Great Soil Improver

Drought Resistant



Makes Poor Land Rich

Makes Good Land more Productive

Enormously productive both of vine and peas; of exceptional value for feeding Hogs and Cattle. The Cow Pea is a wonderful gatherer of Nitrogen, and as a means of adding humus to the soil is easily the superior of any nitrogen gathering legume. Sow 1 to 2 bushels per acre broadcast, or in drills 3 ft. apart, ½ bushel per acre. **8d.** lb.; **70/-** per cwt.

FIELD LUPINS

A Remarkable Crop Raiser

Sow from November to March at the rate of 1½ bushels per acre for mulching purposes. If sown early in January, and ploughed in in May, Oats or other crops can then be sown. By following this method a satisfactory crop is assured without the loss of a season. One good crop ploughed in will give two satisfactory crops in return. **9d.** lb.; **40/-** bushel (60 lb.).

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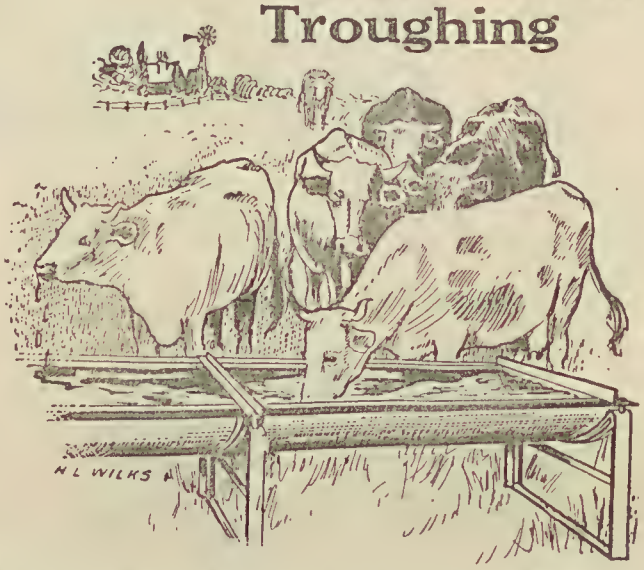

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are sound in construction. Everything which enters into their manufacture is of Australia's best--they are rain and dust proof, weather influences cannot affect the working parts, and, with its unsurpassed oiling system, friction and wear and tear is practically nil. The enclosed-gear "BILLABONG" is undoubtedly a very superior Windmill. *Particulars and Prices Post Free.*

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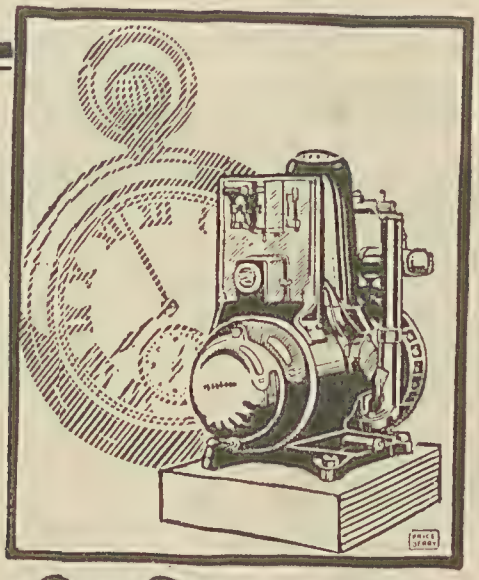

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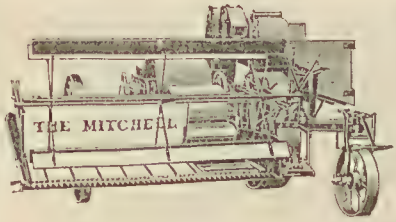

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The well-known Wimmera farmer, Mr. J. H. Reichelt, of Lorquon, says :—
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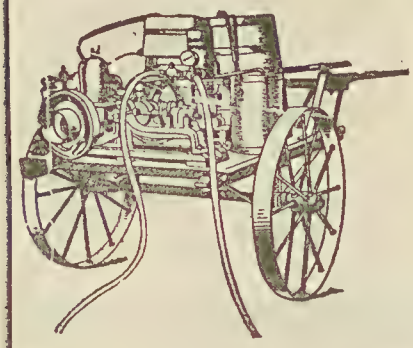

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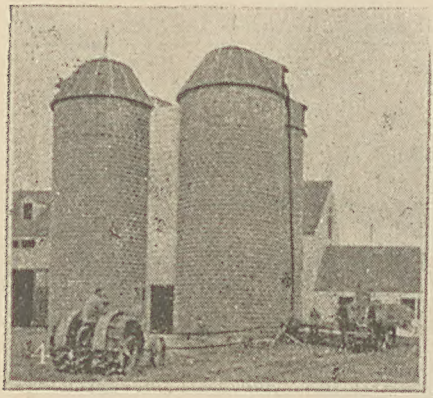

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DEPARTMENT OF AGRICULTURE

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Orders for Cockerels for delivery from March may now be booked from the Poultry Pens at the Central Research Farm, Werribee
Settings of Eggs can be supplied in season
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No. 1—Pure Cosh World's Record Strain.

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No. 1—From Single Tested Hens with scores of 256 to 284 mated to Cockerels bred from Hens with scores of 272 to 313 eggs.

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FOR 1926

AS the last month of the year slips by, the attention of every thoughtful farmer is centred on the planning of the New Year's work. Autumn is such an important time in the majority of districts and early preparation so essential, that much of the work should now be in hand for the laying down of such lines as :—

PASTURE GRASSES	LUCERNE
SUBTERRANEAN CLOVER	OATS
OTHER CLOVERS	BARLEY

Sowings should be made during February and March. Our Autumn Farm Seed List will be published in the early autumn, and will be at once posted to all regular customers. Any others interested will be placed on our mailing list on receipt of a post card giving their name and address.

With regard to Seed Supplies, those of our readers who have dealt with us in the past know that Yates' Reliable Seeds give the cleanest, heaviest, and surest crops, they know that our Seeds give them far greater value for money than "cheap" seeds, and that the slight extra cost of Yates' Recleaned and Tested Farm Seeds is more than repaid by their undoubted superiority in quality, growth, and strain. For 1926 we shall exercise the same scrupulous care in the selection, testing, and recleaning of Yates' Reliable Seeds that has made them the choice of the leading agriculturists all over the Commonwealth.

We thank all our customers for their support this past season, and we wish them the Compliments of the Season and a bright and prosperous New Year 1926.

ARTHUR YATES & Co. Ltd.

Letters Box 2707C G.P.O.

Australia's Greatest Seed House, SUSSEX ST., SYDNEY

Wires "SEEDSMAN," SYDNEY

By Authority: H. J. Green, Government Printer, Melbourne.

DEPARTMENT OF AGRICULTURE, VICTORIA

Red Poll Dairy Herd

The Department has now completed the orders for calves that were booked ahead of calving when the advertisement was withdrawn; consequently the booking of orders for bull calves from the forthcoming calvings has now been resumed.

BULL CALVES are sold for delivery at a month old at prices based approximately on the actual milk and butter fat record of the dam at the rate of 1s. per lb. of butter ***fat*** yielded. Thus a calf from a cow with a 400 lb. butter fat record is sold for 20 guineas, one from a 300 lb. butter fat cow for 15 guineas, and so on. Bull Calves *ex* heifers on their first calf are sold for a set price of 10 guineas.

(For Record of Yields of dams see Red Poll Herd Book.)

SIRES IN USE:

VICTORIA VOLCANO (322 A.)

Sire: Nicotine (69 A.A.) by Acton Dewstone (imp.) 9524 (4 A.A.).
Dam: Tonga (253 A.) by Honingham Archbishop (imp.) 9702 (48 A.A.).

Tonga's butter fat yields for 6 successive lactation periods are as follow:—1916, 341 lb.; 1917, 398 lb.; 1918, 419 lb.; 1919, 479 lb.; 1920, 428 lb.; 1921, 562 lb.

BELLIGERENT (Imported) 11096 (8 A.A.)

Dam's Record (1st milking) 7144 lb. milk.

Dam's Dam's	,,	14533 lb. milk	...	4 years	average	12871 lb. milk.	
Sire's Dam's	,,	10370	,,	... 7	,,	,, 9354	,,
Sire's D. Dam's	,,	9510	,,	... 12	,,	,, 8033	,,
G. Sire's D. Dam's	,,	10215	,,	... 7	,,	,, 9386	,,
G.G. Sire's D. Dam's	,,	12565	,,	... 10	,,	,, 8853	,,
G.G.G. Sire's D. Dam's	,,	10088	,,	... 2	,,	,, 9754	,,

BIT O' 'BACCA (Vol. 3)

Sire: Nicotine (69 A.A.) by Acton Dewstone (imp.) 9524 (4 A.A.).
Dam: Nictitana (311 B.) by Nicotine (69 A.A.).

Nictitana's butter fat records for 6 successive lactation periods are as follow:—1918, 450 lb.; 1919, 396 lb.; 1920, 393 lb.; 1921, 465 lb.; 1922, 524 lb.; 1923, 536 lb.

Inspection of the Herd is Invited.

Visitors will be met at the Station on notifying the Manager, State Research Farm, Werribee.

Application for purchase to

Dr. S. S. CAMERON, DIRECTOR OF AGRICULTURE, MELBOURNE.

AFTER THE HARVEST!

When you have finished harvesting, what about that holiday you have long promised yourself.

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GOVERNMENT CHALET.

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Ask those who have been.

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